DCR-TRV24E/TRV25E/ TRV27E

RMT-814

SERVICE MANUAL

LEVEL 2

Ver 1.0 2002. 04

Revision History

Photo: DCR-TRV24E

AEP Model
North European Model
DCR-TRV24E/TRV25E/TRV27E

UK Model
DCR-TRV25E

E Model
East European Model
Hong Kong Model
Australian Model
Chinese Model
DCR-TRV25E/TRV27E

Tourist Model
DCR-TRV27E

J MECHANISM

Link

SPECIFICATIONS	BLOCK DIAGRAMS	PRINTED WIRING BOARDS
SERVICE NOTE	FRAME SCHEMATIC DIAGRAMS	ADJUSTMENTS
DISASSEMBLY	SCHEMATIC DIAGRAMS	REPAIR PARTS LIST

- For INSTRUCTION MANUAL, refer to SERVICE MANUAL, LEVEL 1 (992995441.pdf).
- For MECHANISM ADJUSTMENTS, refer to the “DV MECHANICAL ADJUSTMENT MANUAL Ⅵ J MECHANISM” (9-929-807-11).

On the VC-281 board

This service manual provides the information that is premised the circuit board replacement service and not intended repair inside the VC-281 board.

Therefore, schematic diagram, printed wiring board, waveforms, mounted parts location and electrical parts list of the VC-281 board are not shown.

The following pages are not shown.

Schematic diagram ..... Pages 4-37 to 4-68
Printed wiring board ..... Pages 4-89 to 4-92
Waveforms ..... Pages 4-96 to 4-97
Mounted parts location ..... Pages 4-100 to 4-101
Electrical parts list ..... Pages 6-20 to 6-26

Mini DV Digital Video Cassette

DIGITAL VIDEO CAMERA RECORDER

SONY

COVER

Self Diagnosis Supported model

Digital Handycam

InfoLITHIUM M SERIES

Cassette Memory

MEMORY STICK

SPECIFICATIONS

Video camera recorder

System

Video recording system
2 rotary heads
Helical scanning system
Audio recording system
Rotary heads, PCM system
Quantization: 12 bits (Fs 32 kHz, stereo 1, stereo 2), 16 bits (Fs 48 kHz, stereo)
Video signal
PAL colour, CCIR standards
Usable cassette
Mini DV cassette with the Mini DV mark printed
Tape speed
SP: Approx. 18.81 mm/s
LP: Approx. 12.56 mm/s
Recording/playback time (using cassette DVM60)
SP: 1 hour
LP: 1.5 hours
Fastforward/rewind time (using cassette DVM60)
When using the battery pack:
Approx. 2 min. and 30 seconds
When using the AC power adaptor:
Approx. 2 min. and 30 seconds
Viewfinder
Electric viewfinder (colour)
Image device
3.8 mm (1/4.7 type) CCD (Charge Coupled Device)
Gross: Approx. 1 070 000
Effective (still):
Approx. 1 000 000 pixels
Effective (moving):
Approx. 690 000 pixels
Lens
Carl Zeiss
Combined power zoom lens
Filter diameter
30 mm (1 3/16 in.)
10 (Optical), 120 (Digital)
Focal length
3.7 – 37 mm (5/32 – 1 1/2 in.)
When converted to a 35 mm still camera
In CAMERA:
50 – 500 mm (2 – 19 3/4 in.)
In MEMORY:
42 – 420 mm (1 11/16 – 16 5/8 in.)
Colour temperature
Auto, HOLD (Hold), Indoor (3 200 K), Outdoor (5 800 K)
Minimum illumination
7 lx (lux) (F 1.8)
0 lx (lux) (in the NightShot mode)*
* Objects unable to be seen due to the dark can be shot with infrared lighting.

Input/Output connectors

S video input/output
DCR-TRV25E/TRV27E
4-pin mini DIN
Luminance signal: 1 Vp-p, 75 Ω (ohms), unbalanced
Chrominance signal: 0.3 Vp-p, 75 Ω (ohms), unbalanced
S video output
DCR-TRV24E:
4-pin mini DIN
Luminance signal: 1 Vp-p, 75 Ω (ohms), unbalanced
Chrominance signal: 0.3 Vp-p, 75 Ω (ohms), unbalanced
Audio/Video input/output
DCR-TRV25E/TRV27E
AV MINI JACK, 1 Vp-p, 75 Ω (ohms), unbalanced, sync negative 327 mV, (at output impedance more than 47 kΩ (kilohms))
Output impedance with less than 2.2 kΩ (kilohms)/Stereo minijack (ø 3.5mm)
Input impedance more than 47 kΩ (kilohms)
Audio/Video output
DCR-TRV24E:
AV MINI JACK, 1 Vp-p, 75 Ω (ohms), unbalanced, sync negative 327 mV, (at output impedance more than 47 kΩ (kilohms))
Output impedance with less than 2.2 kΩ (kilohms)/Stereo minijack (ø 3.5mm)
Input impedance more than 47 kΩ (kilohms)
DV input/output
DCR-TRV25E/TRV27E
4-pin connector
DV output
DCR-TRV24E:
4-pin connector
Headphone jack
Stereo minijack (ø 3.5 mm)
USB jack
mini-B
LANC jack
Stereo mini-minijack (ø 2.5 mm)
MIC jack
Stereo minijack (ø 3.5 mm)

LCD screen

Picture
DCR-TRV24E/TRV25E
6.2 cm (2.5 type)
50.3 × 37.4 mm (2 × 1 1/2 in.)
DCR-TRV27E:
8.8 cm (3.5 type)
72.2 × 50.4 mm (2 7/8 × 2 in.)
Total dot number
123 200 (560 × 220)

General

Power requirements
7.2 V (battery pack)
8.4 V (AC power adaptor)
Average power consumption (when using the battery pack)
During camera recording using LCD
DCR-TRV24E/TRV25E: 4.1 W
DCR-TRV27E: 4.5 W
Viewfinder
3.3 W
Operating temperature
0°C to 40°C (32°F to 104°F)
Storage temperature
–20°C to + 60°C
(–4°F to + 140°F)
Dimensions (Approx.)
76 × 93 × 163 mm
(3 × 3 3/4 × 6 1/2 in.)
(w/h/d)
Mass (approx.)
DCR-TRV24E/TRV25E:
640 g (1 lb 6 oz)
DCR-TRV27E: 660 g (1 lb 7 oz)
main unit only
DCR-TRV24E/TRV25E:
740 g (1 lb 10 oz)
DCR-TRV27E: 760 g (1 lb 10 oz)
including the battery pack cassette DVM60 and lens cap
Supplied accessories
See page 3.

AC power adaptor

Power requirements
100 – 240 V AC, 50/60 Hz
Power consumption
23 W
Output voltage
DC OUT: 8.4 V, 1.5 A in the operating mode
Operating temperature
0°C to 40°C (32°F to 104°F)
Storage temperature
–20°C to + 60°C (–4°F to + 140°F)
Dimensions (approx.)
125 × 39 × 62 mm
(5 × 1 9/16 × 2 1/2 in.) (w/h/d)
excluding projecting parts
Mass (approx.)
280 g (9.8 oz)
excluding mains lead

Battery pack

NP-FM50

Maximum output voltage
DC 8.4 V
Output voltage
DC 7.2 V
Capacity
8.5 Wh (1 180 mAh)
Dimensions (approx.)
38.2 × 20.5 × 55.6 mm
(1 9/16 × 13/16 × 2 1/4 in.)
(w/h/d)
Mass (approx.)
76 g (2.7 oz)
Type
Lithium ion

"Memory Stick"

Memory
Flash memory
8 MB: MSA-8A
Operating voltage
2.7 – 3.6 V
Power consumption
Approx. 45 mA in the operating mode
Approx. 130 µA in the standby mode
Dimensions (approx.)
50 × 2.8 × 21.5 mm
(2 × 1/8 × 7/8 in.) (w/h/d)
Mass (approx.)
4 g (0.14 oz)

Design and specifications are subject to change without notice.

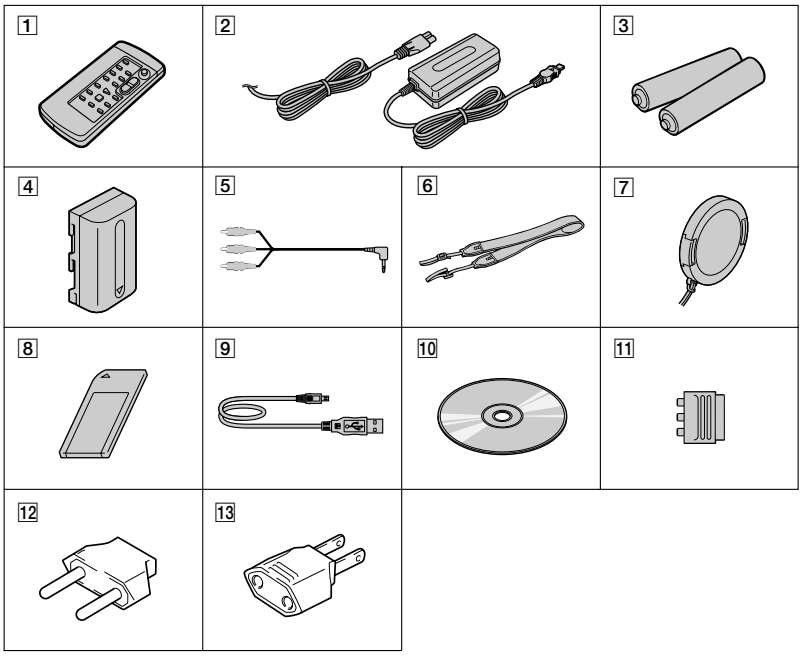
SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

CAUTION :
Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type.

• SUPPLIED ACCESSORIES

Make sure that the following accessories are supplied with your camcorder.



1 **Wireless Remote Commander** (1)

2 **AC-L10A/L10B/L10C AC power adaptor** (1), **Mains lead** (1)

3 **R6 (size AA) battery for Remote Commander** (2)

4 **Battery pack** (1)
NP-FM50

5 **A/V connecting cable** (1)

6 **Shoulder strap** (1)

7 **Lens cap** (1)

8 **"Memory Stick" (MSA-8A)** (1)

9 **USB cable** (1)

10 **CD-ROM (SPVD-008 USB Driver)** (1)

11 **21-pin adaptor** (1)
(DCR-TRV24E: AEP, NE model only)
(DCR-TRV25E: AEP, UK, EE, NE model only)
(DCR-TRV27E: AEP, EE, NE model only)

12 **2-pin conversion adaptor** (1)
(DCR-TRV27E: JE model only)

13 **2-pin conversion adaptor** (1)
(DCR-TRV25E: E, HK / TRV27E: E, HK model only)

Table for difference of function

Model	DCR-TRV24E	DCR-TRV25E	DCR-TRV27E
Destination	AEP, NE	AEP, UK, NE, EE, E, HK, AUS, CH	AEP, NE, EE, E, HK, AUS, CH, JE
Line REC	×	○	○
LCD	2.5inch		3.5inch

- Abbreviation
  EE : East European model
  NE : North European model
  HK : Hong Kong model
  AUS : Australian model
  CH : Chinese model
  JE : Tourist model

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer.

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, through functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.
6. Flexible Circuit Board Repairing
   - Keep the temperature of the soldering iron around 270˚C during repairing.
   - Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
   - Be careful not to apply force on the conductor when soldering or unsoldering.

Unleaded solder

Boards requiring use of unleaded solder are printed with the lead-free mark (LF) indicating the solder contains no lead.
(Caution: Some printed circuit boards may not come printed with the lead free mark due to their particular size.)

: LEAD FREE MARK

Unleaded solder has the following characteristics.

- Unleaded solder melts at a temperature about 40°C higher than ordinary solder.
  Ordinary soldering irons can be used but the iron tip has to be applied to the solder joint for a slightly longer time.
  Soldering irons using a temperature regulator should be set to about 350°C.
  Caution: The printed pattern (copper foil) may peel away if the heated tip is applied for too long, so be careful!
- Strong viscosity
  Unleaded solder is more viscous (sticky, less prone to flow) than ordinary solder so use caution not to let solder bridges occur such as on IC pins, etc.
- Usable with ordinary solder
  It is best to use only unleaded solder but unleaded solder may also be added to ordinary solder.

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6-1-10. LS CHASSIS BLOCK ASSEMBLY ····· 6-10 ·
6-1-11. MECHANISM CHASSIS BLOCK ASSEMBLY ····· 6-11
6-2. ELECTRICAL PARTS LIST ····· 6-12 ····

Parts list of the VC-281 board are not shown.
Pages from 6-20 to 6-26 are not shown.

* Color reproduction frame is shown on page 191.

COVER

SECTION 1
SERVICE NOTE

1-1. SERVICE NOTE

1. POWER SUPPLY DURING REPAIRS

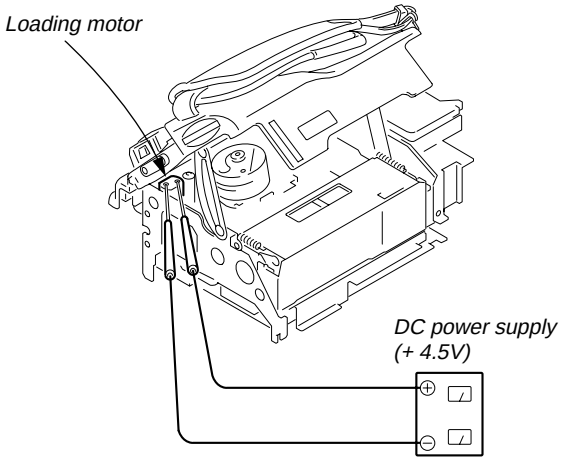
In this unit, about 10 seconds after power is supplied to the battery terminal using the regulated power supply (8.4V), the power is shut off so that the unit cannot operate.
This following two methods are available to prevent this. Take note of which to use during repairs.

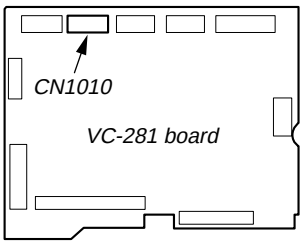
Method 1:
Use the AC power adaptor (AC-L10, AC-VQ800 etc.).

Method 1:
Connect the servicing remote commander RM-95 (J-6082-053-B) to the LANC jack, and set the commander switch to the “ADJ” side.

2. TO TAKE OUT A CASSETTE WHEN NOT EJECT (FORCE EJECT)

① Refer to 2-3 to remove the front panel assembly.
② Refer to 2-5 to remove the top cabinet assembly.
③ Refer to 2-6 to remove the cabinet (R) assembly.
④ Refer to 2-7 to remove the battery panel section.
⑤ Remove the EVF block.
⑥ Open the VA-117 board.
⑦ Disconnect CN1010 (27P, 0.3mm) of VC-281 board.
⑧ Open the cassette lid.
⑨ Supply +4.5V from the DC power supply to the loading motor and unload with a pressing the cassette compartment.





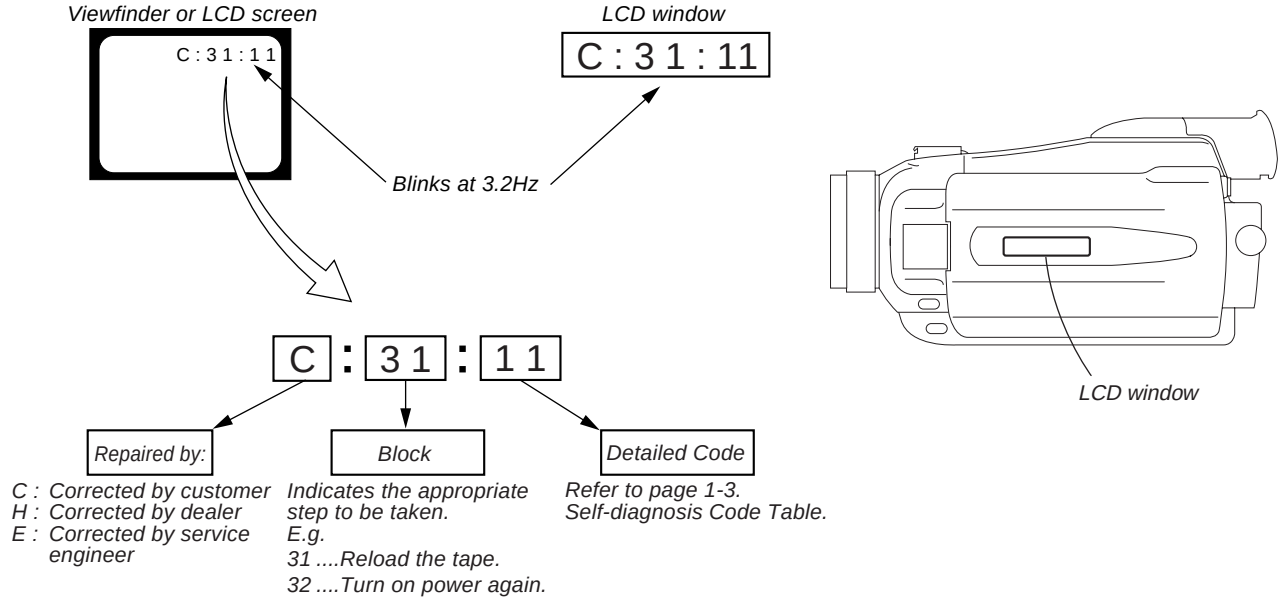
1-2. SELF-DIAGNOSIS FUNCTION

1. SELF-DIAGNOSIS FUNCTION

When problems occur while the unit is operating, the self-diagnosis function starts working, and displays on the viewfinder, LCD screen or LCD window what to do. This function consists of two display; self-diagnosis display and service mode display.
Details of the self-diagnosis functions are provided in the Instruction manual.

2. SELF-DIAGNOSIS DISPLAY

When problems occur while the unit is operating, the counter of the viewfinder, LCD screen or LCD window consists of an alphabet and 4-digit numbers, which blinks at 3.2 Hz. This 5-character display indicates the "repaired by:", "block" in which the problem occurred, and "detailed code" of the problem.

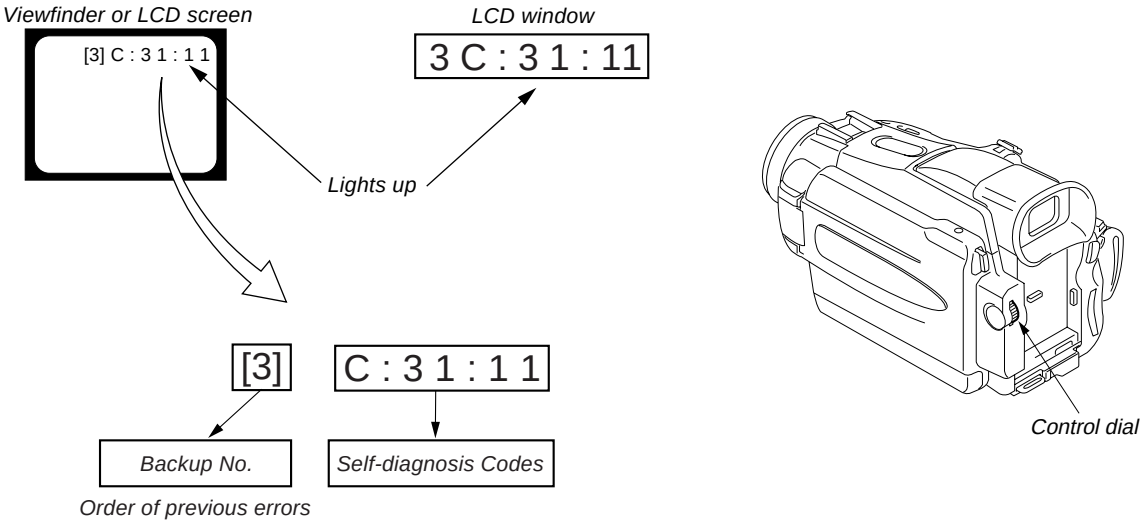

Viewfinder or LCD screen
C : 3 1 : 1 1
LCD window
C : 3 1 : 11
Blinks at 3.2Hz
C : 31 : 11
Repaired by:
Block
Detailed Code
C : Corrected by customer
H : Corrected by dealer
E : Corrected by service engineer
Indicates the appropriate step to be taken.
E.g.
31 ....Reload the tape.
32 ....Turn on power again.
Refer to page 1-3. Self-diagnosis Code Table.
LCD window

3. SERVICE MODE DISPLAY

The service mode display shows up to six self-diagnosis codes shown in the past.

3-1. Display Method

While pressing the "STOP" key, set the switch from OFF to "VCR", and continue pressing the "STOP" key for 5 seconds continuously. The service mode will be displayed, and the counter will show the backup No. and the 5-character self-diagnosis codes.



3-2. Switching of Backup No.

By rotating the control dial, past self-diagnosis codes will be shown in order. The backup No. in the [] indicates the order in which the problem occurred. (If the number of problems which occurred is less than 6, only the number of problems which occurred will be shown.)

[1] : Occurred first time
[2] : Occurred second time
[3] : Occurred third time
[4] : Occurred fourth time
[5] : Occurred fifth time
[6] : Occurred the last time

3-3. End of Display

Turning OFF the power supply will end the service mode display.

Note:	The "self-diagnosis display" data will be kept even if the lithium battery (CK-108 board BT5201 of the cabinet (R) assembly) is removed.

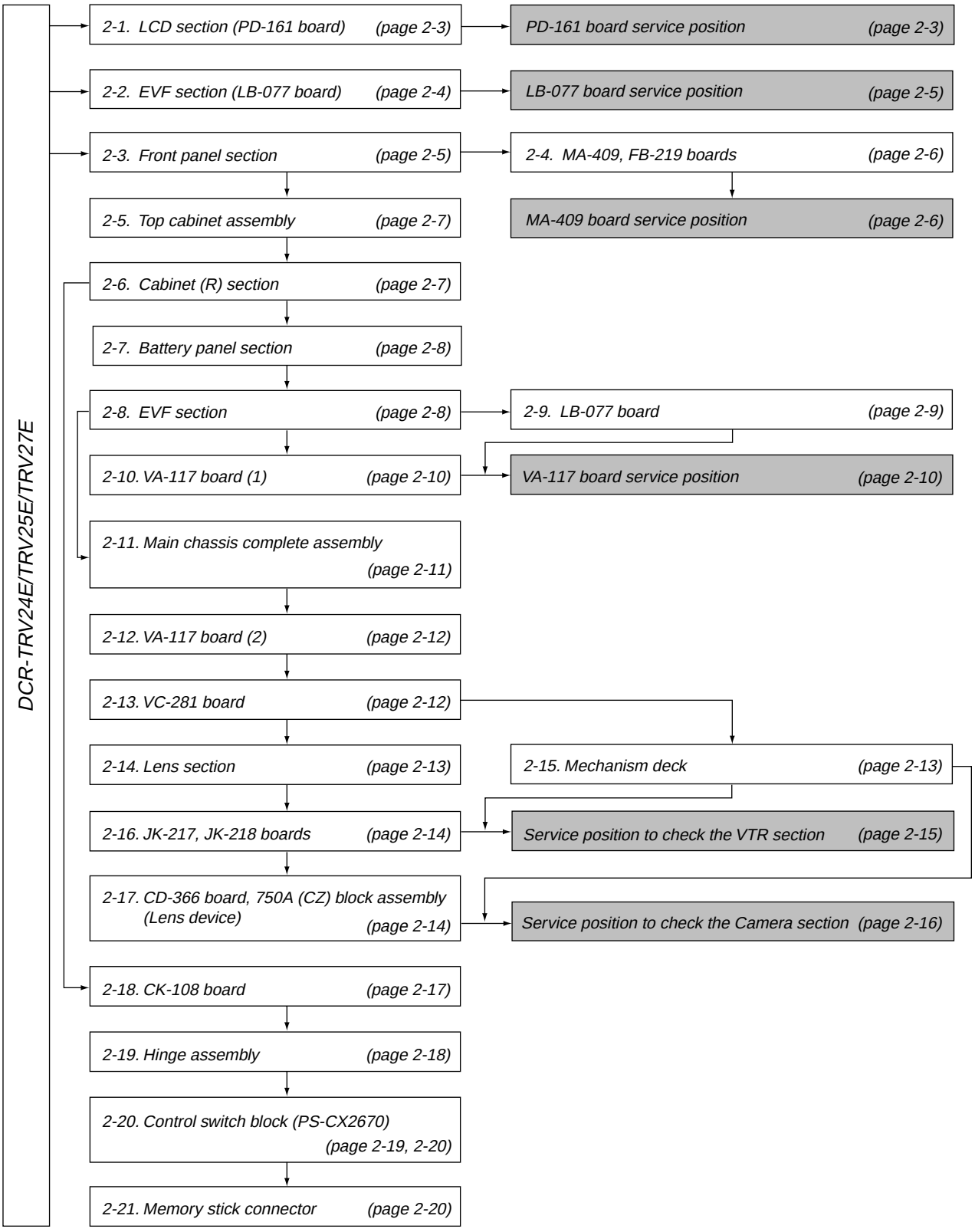
4. SELF-DIAGNOSIS CODE TABLE

Self-diagnosis Code					Symptom/State	Correction
Repaired by:	Block Function		Detailed Code			
C	0	4	0	0	Non-standard battery is used.	Use the info LITHIUM battery.
C	2	1	0	0	Condensation.	Remove the cassette, and insert it again after one hour.
C	2	2	0	0	Video head is dirty.	Clean with the optional cleaning cassette.
C	3	1	1	0	LOAD direction. Loading does not complete within specified time	Load the tape again, and perform operations from the beginning.
C	3	1	1	1	UNLOAD direction. Loading does not complete within specified time	Load the tape again, and perform operations from the beginning.
C	3	1	2	0	T reel side tape slacking when unloading.	Load the tape again, and perform operations from the beginning.
C	3	1	2	1	Winding S reel fault when counting the rest of tape.	Load the tape again, and perform operations from the beginning.
C	3	1	2	2	T reel fault.	Load the tape again, and perform operations from the beginning.
C	3	1	2	3	S reel fault.	Load the tape again, and perform operations from the beginning.
C	3	1	2	4	T reel fault.	Load the tape again, and perform operations from the beginning.
C	3	1	3	0	FG fault when starting capstan.	Load the tape again, and perform operations from the beginning.
C	3	1	4	0	FG fault when starting drum.	Load the tape again, and perform operations from the beginning.
C	3	1	4	2	FG fault during normal drum operations.	Load the tape again, and perform operations from the beginning.
C	3	1	1	0	LOAD direction loading motor time-out.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	1	1	1	UNLOAD direction loading motor time-out.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	2	0	T reel side tape slacking when unloading.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	2	1	Winding S reel fault when counting the rest of tape.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	2	2	T reel fault.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	2	3	S reel fault.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	2	4	T reel fault.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	3	0	FG fault when starting capstan.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	4	0	FG fault when starting drum	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	4	2	FG fault during normal drum operations	Remove the battery or power cable, connect, and perform operations from the beginning.
E	6	1	0	0	Difficult to adjust focus (Cannot initialize focus.)	Inspect the lens block focus MR sensor (Pin ⑧, ⑨ of CN1301 of VC-281 board) when focusing is performed when the focus ring is rotated in the focus manual mode, and the focus motor drive circuit (IC1301 of VC-281 board) when the focusing is not performed.
E	6	1	1	0	Zoom operations fault (Cannot initialize zoom lens.)	Inspect the lens block zoom MR sensor (Pin ⑱, ⑳ of CN1301 of VC-281 board) when zooming is performed when the zoom lens is operated and the zoom motor drive circuit (IC1301 of VC-281 board) when zooming is not performed.
E	6	2	0	0	Steadyshot function does not work well. (With pitch angular velocity sensor output stopped.)	Inspect pitch angular velocity sensor (SE5302 of JK-217 board) peripheral circuits.
E	6	2	0	1	Steadyshot function does not work well. (With yaw angular velocity sensor output stopped.)	Inspect yaw angular velocity sensor (SE5301 of JK-217 board) peripheral circuits.

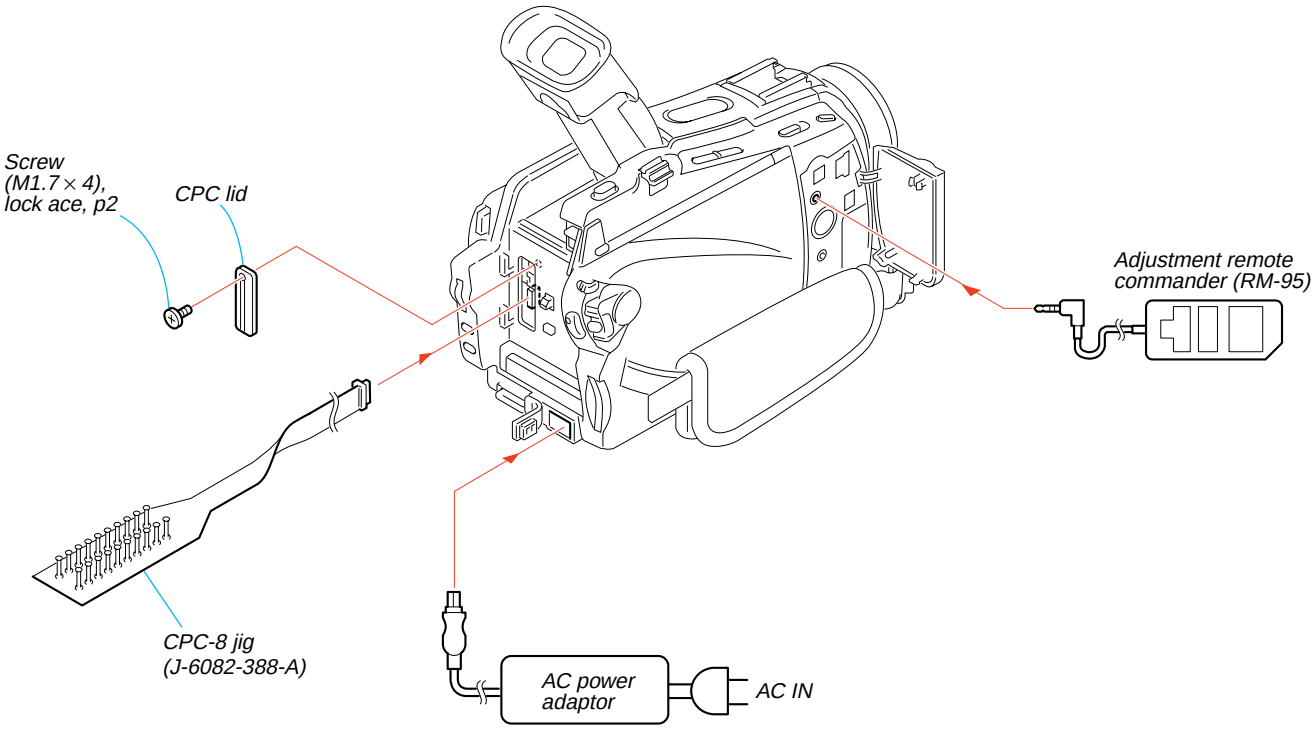
COVER

SECTION 2
DISASSEMBLY

The following flow chart shows the disassembly procedure.

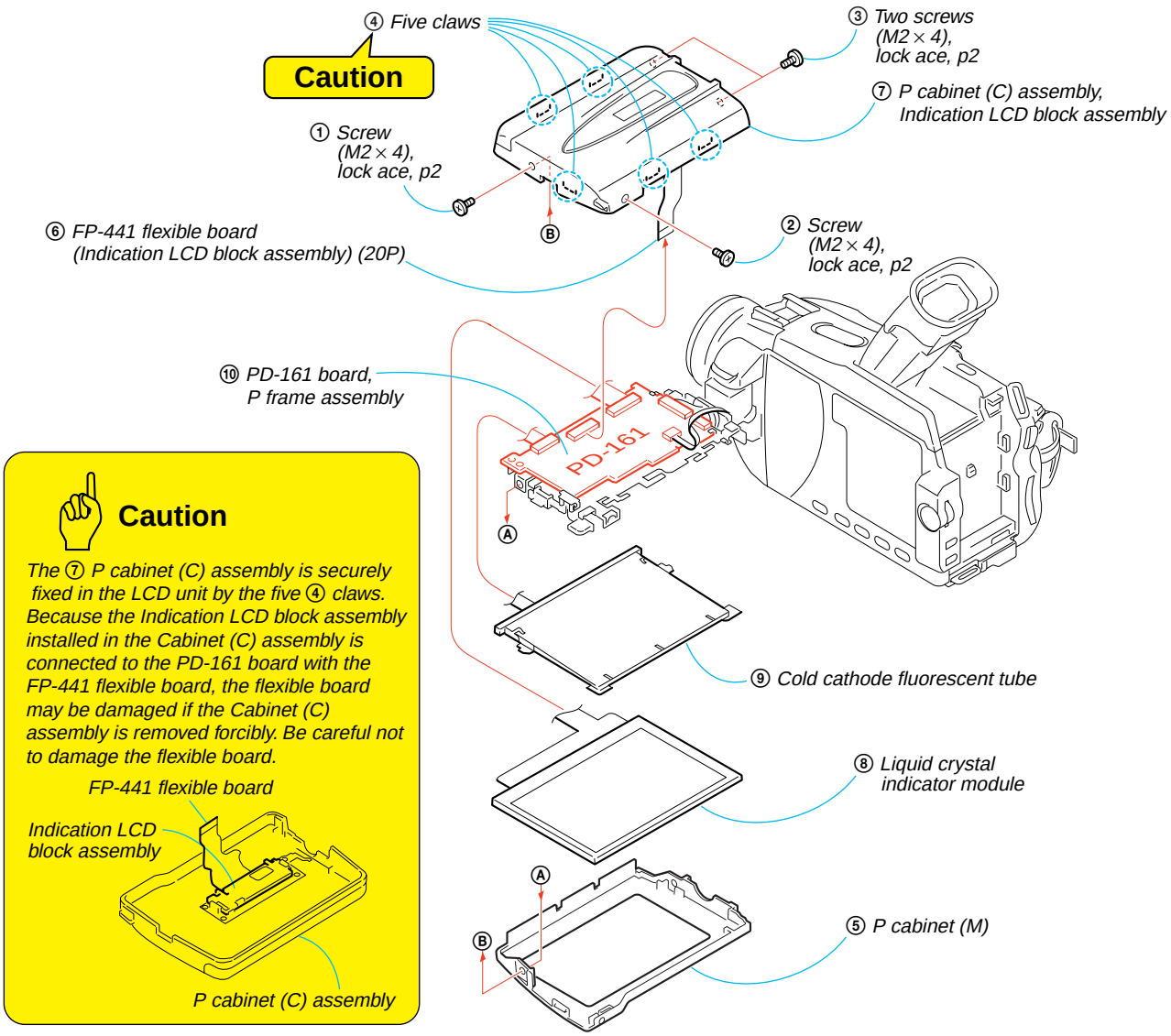

DCR-TRV24E/TRV25E/TRV27E
2-1. LCD section (PD-161 board) (page 2-3)
PD-161 board service position (page 2-3)
2-2. EVF section (LB-077 board) (page 2-4)
LB-077 board service position (page 2-5)
2-3. Front panel section (page 2-5)
2-4. MA-409, FB-219 boards (page 2-6)
2-5. Top cabinet assembly (page 2-7)
MA-409 board service position (page 2-6)
2-6. Cabinet (R) section (page 2-7)
2-7. Battery panel section (page 2-8)
2-8. EVF section (page 2-8)
2-9. LB-077 board (page 2-9)
2-10. VA-117 board (1) (page 2-10)
VA-117 board service position (page 2-10)
2-11. Main chassis complete assembly (page 2-11)
2-12. VA-117 board (2) (page 2-12)
2-13. VC-281 board (page 2-12)
2-14. Lens section (page 2-13)
2-15. Mechanism deck (page 2-13)
2-16. JK-217, JK-218 boards (page 2-14)
Service position to check the VTR section (page 2-15)
2-17. CD-366 board, 750A (CZ) block assembly (Lens device) (page 2-14)
Service position to check the Camera section (page 2-16)
2-18. CK-108 board (page 2-17)
2-19. Hinge assembly (page 2-18)
2-20. Control switch block (PS-CX2670) (page 2-19, 2-20)
2-21. Memory stick connector (page 2-20)

[CONNECTION OF EQUIPMENT]

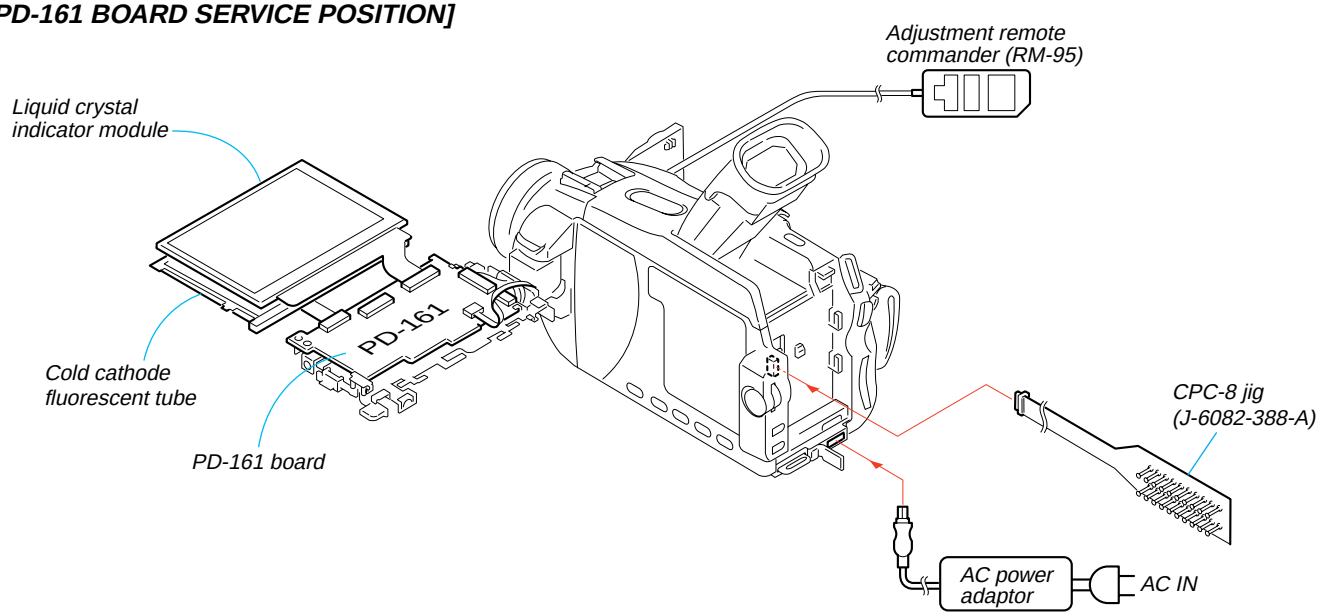


NOTE: Follow the disassembly procedure in the numerical order given.

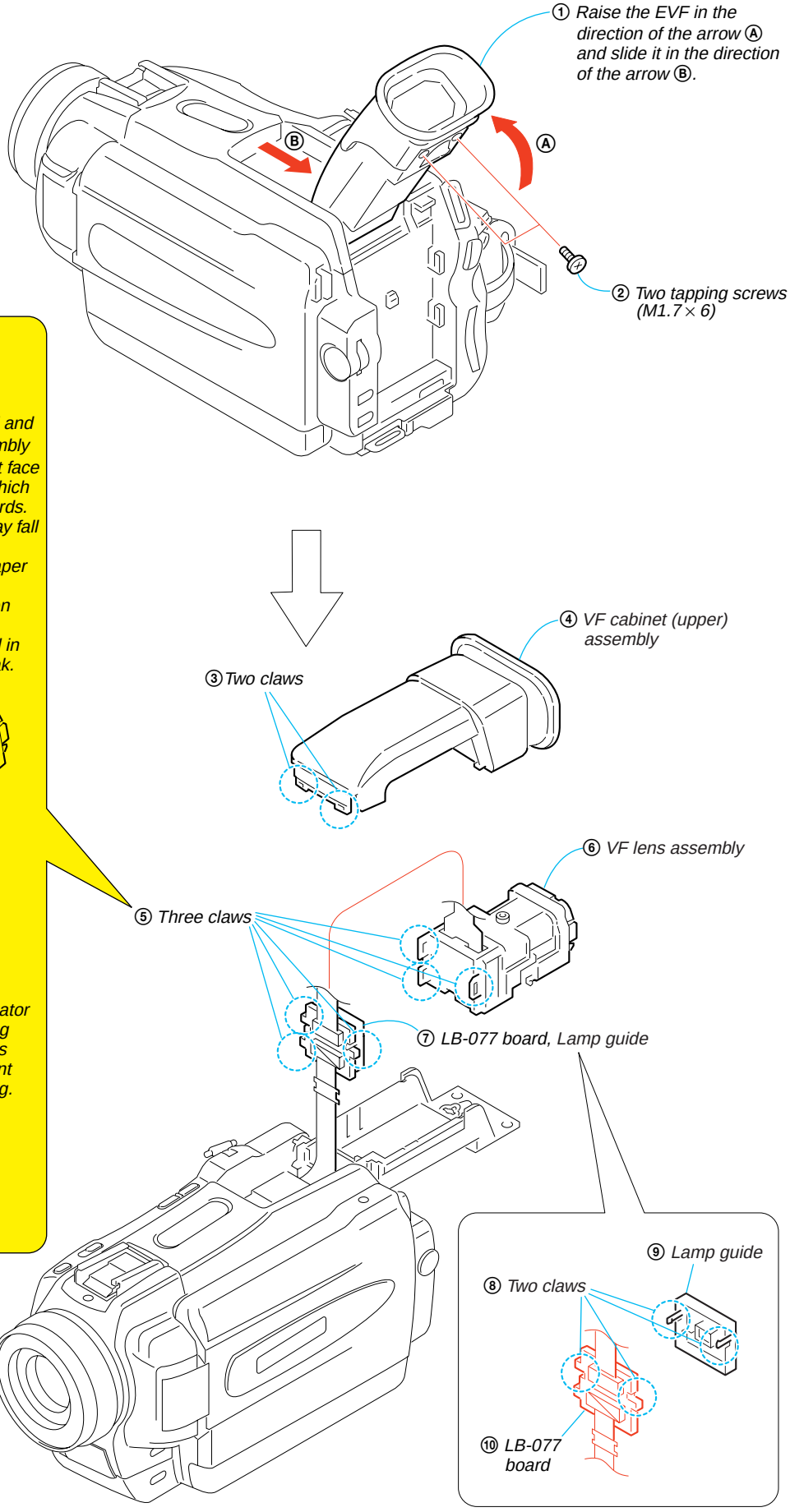
2-1. LCD SECTION (PD-161 BOARD)


④ Five claws
Caution
③ Two screws (M2 × 4), lock ace, p2
⑦ P cabinet (C) assembly, Indication LCD block assembly
① Screw (M2 × 4), lock ace, p2
⑥ FP-441 flexible board (Indication LCD block assembly) (20P)
② Screw (M2 × 4), lock ace, p2
⑩ PD-161 board, P frame assembly
PD-161
⑨ Cold cathode fluorescent tube
⑧ Liquid crystal indicator module
⑤ P cabinet (M)
Caution
The ⑦ P cabinet (C) assembly is securely fixed in the LCD unit by the five ④ claws. Because the Indication LCD block assembly installed in the Cabinet (C) assembly is connected to the PD-161 board with the FP-441 flexible board, the flexible board may be damaged if the Cabinet (C) assembly is removed forcibly. Be careful not to damage the flexible board.
FP-441 flexible board
Indication LCD block assembly
P cabinet (C) assembly

[PD-161 BOARD SERVICE POSITION]

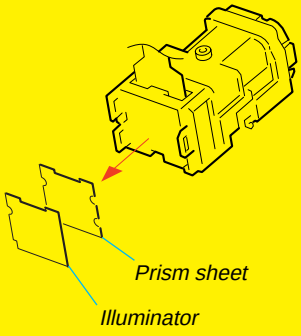


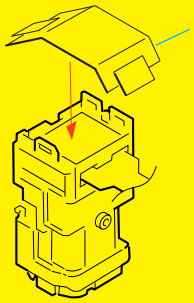
2-2. EVF SECTION (LB-077 BOARD)


① Raise the EVF in the direction of the arrow Ⓐ and slide it in the direction of the arrow Ⓑ.
Ⓑ
Ⓐ
② Two tapping screws (M1.7 × 6)
③ Two claws
④ VF cabinet (upper) assembly
⑤ Three claws
⑥ VF lens assembly
⑦ LB-077 board, Lamp guide
⑧ Two claws
⑨ Lamp guide
⑩ LB-077 board

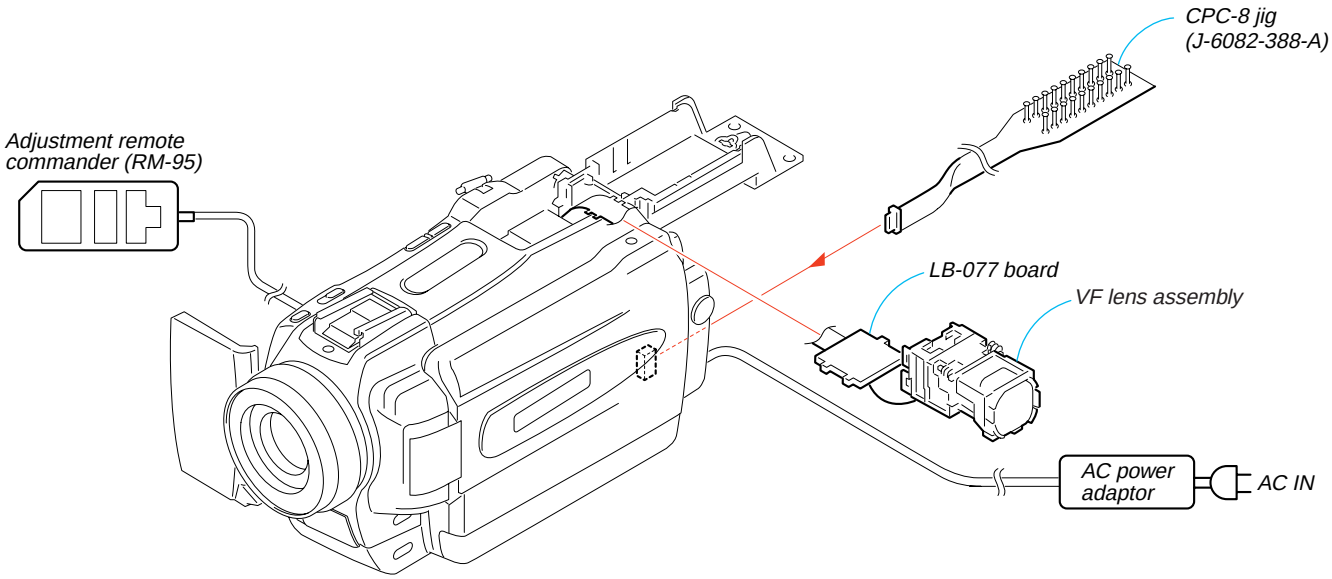
Caution

When separating the ⑦ LB-077 board and Lamp guide from the ⑥ VF lens assembly by removing the three ⑤ claws, do not face the side of the VF lens assembly on which the LB-077 board is installed, downwards. Because the Illuminator and others may fall out of the VF lens assembly, hold the illuminator and others using tape or paper as shown to prevent them from falling. Be careful on this point especially when removing the LB-077 board and Lamp guide because the three claws located in the VF lens assembly are easy to break.

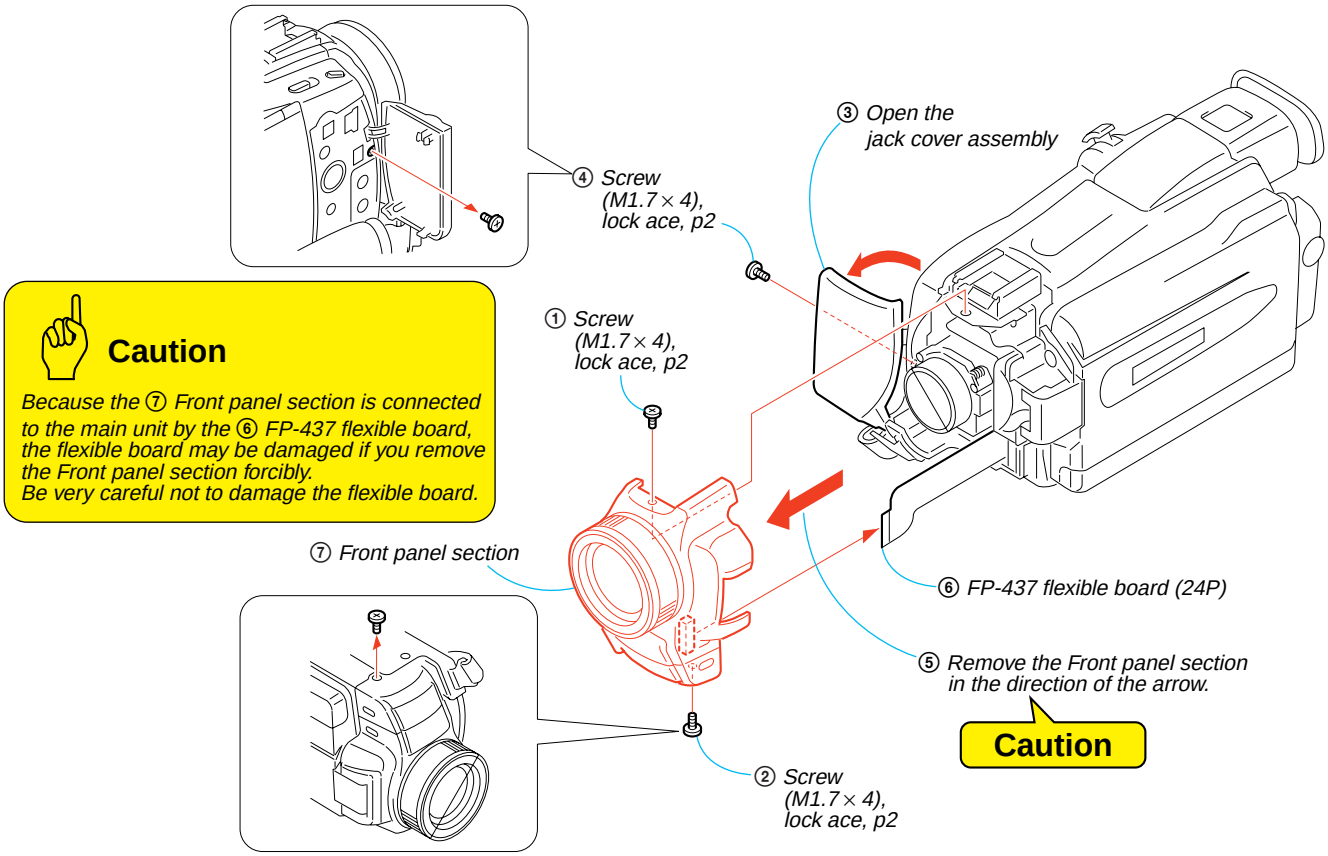




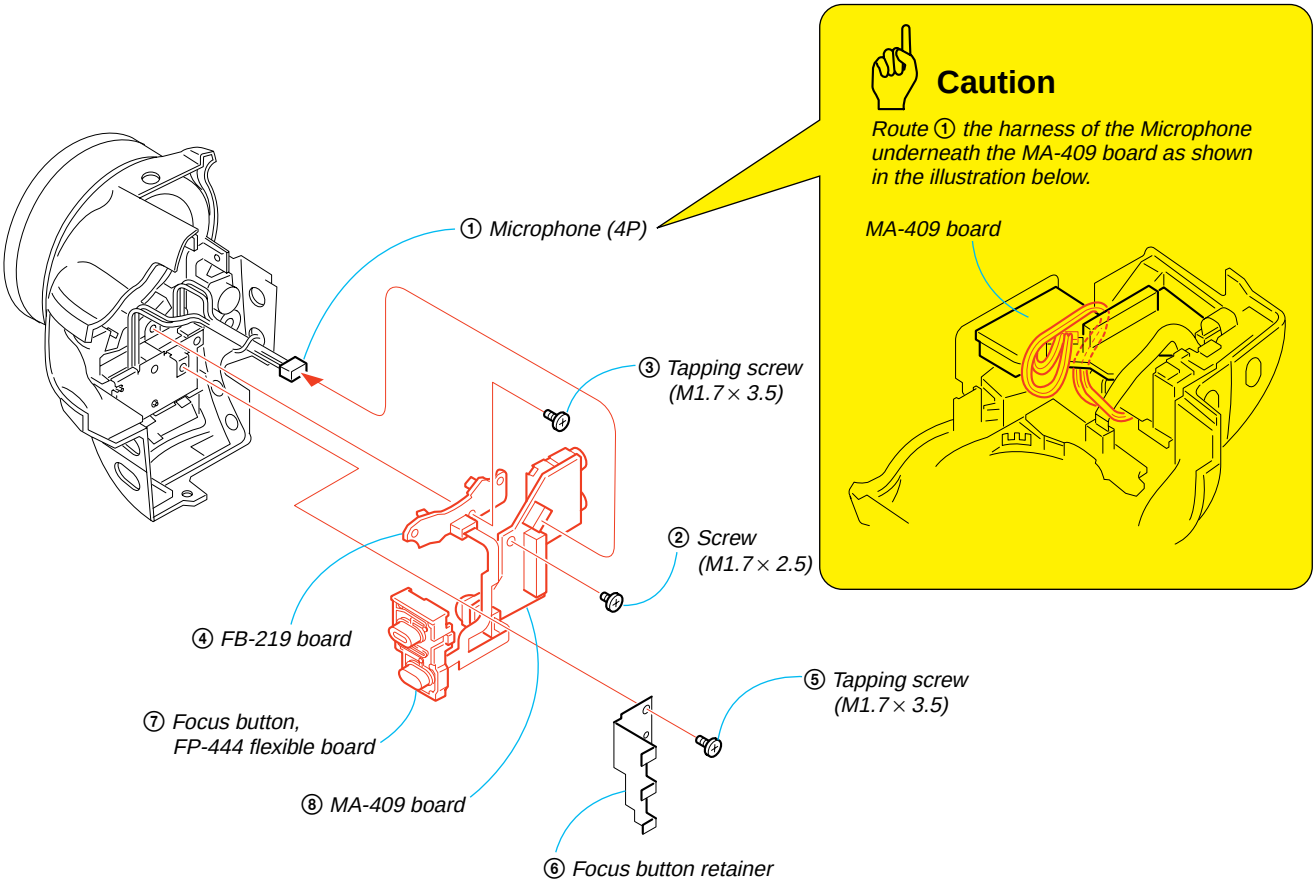
[LB-077 BOARD SERVICE POSITION]



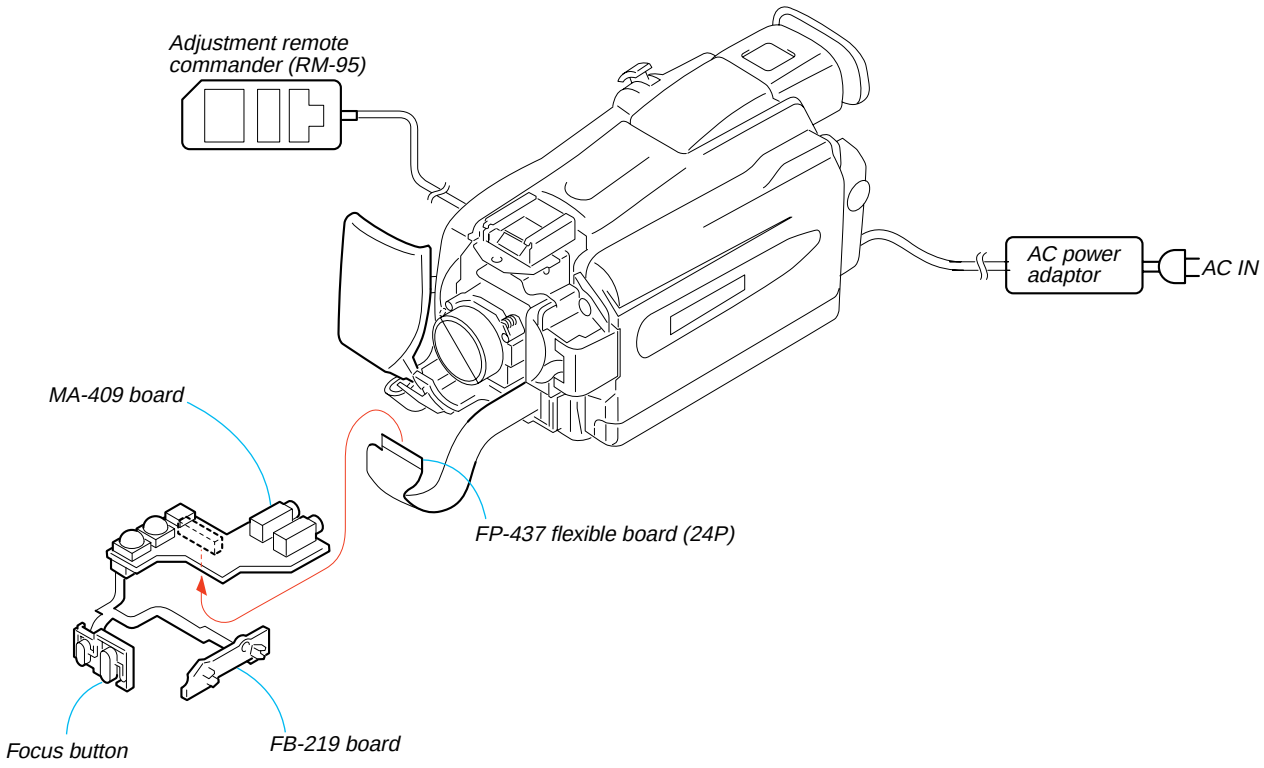
2-3. FRONT PANEL SECTION


④ Screw
(M1.7 × 4),
lock ace, p2
③ Open the
jack cover assembly
① Screw
(M1.7 × 4),
lock ace, p2
⑦ Front panel section
⑥ FP-437 flexible board (24P)
⑤ Remove the Front panel section
in the direction of the arrow.
Caution
② Screw
(M1.7 × 4),
lock ace, p2
Caution
Because the ⑦ Front panel section is connected to the main unit by the ⑥ FP-437 flexible board, the flexible board may be damaged if you remove the Front panel section forcibly.
Be very careful not to damage the flexible board.

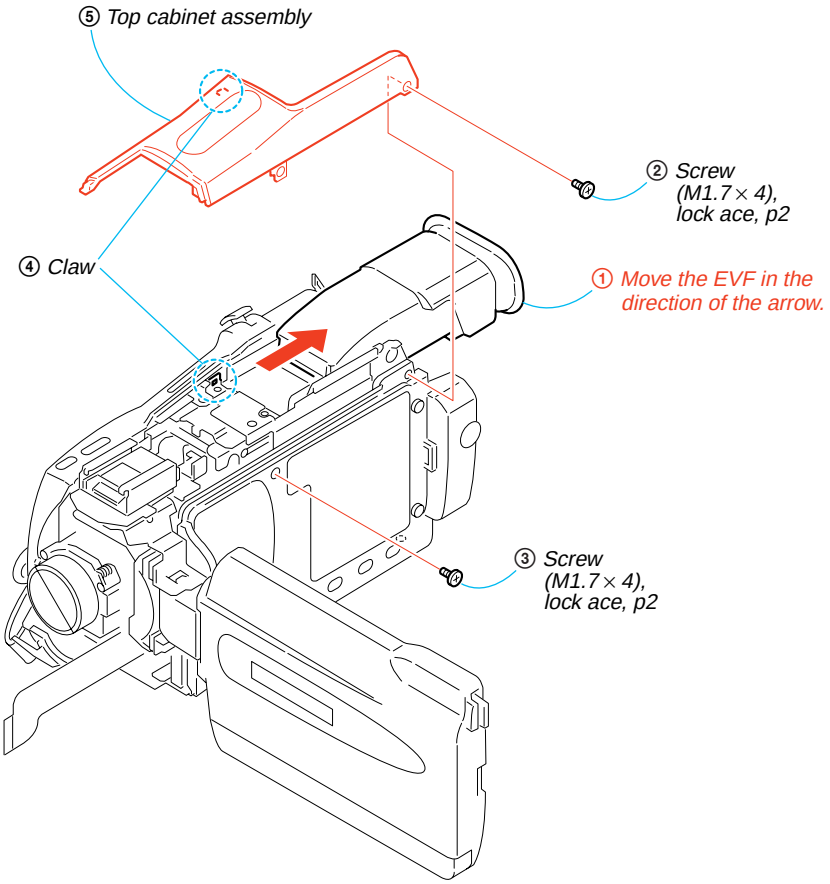
2-4. MA-409, FB-219 BOARDS


Caution
Route ① the harness of the Microphone underneath the MA-409 board as shown in the illustration below.
MA-409 board
① Microphone (4P)
③ Tapping screw (M1.7× 3.5)
② Screw (M1.7× 2.5)
④ FB-219 board
⑤ Tapping screw (M1.7× 3.5)
⑦ Focus button, FP-444 flexible board
⑧ MA-409 board
⑥ Focus button retainer

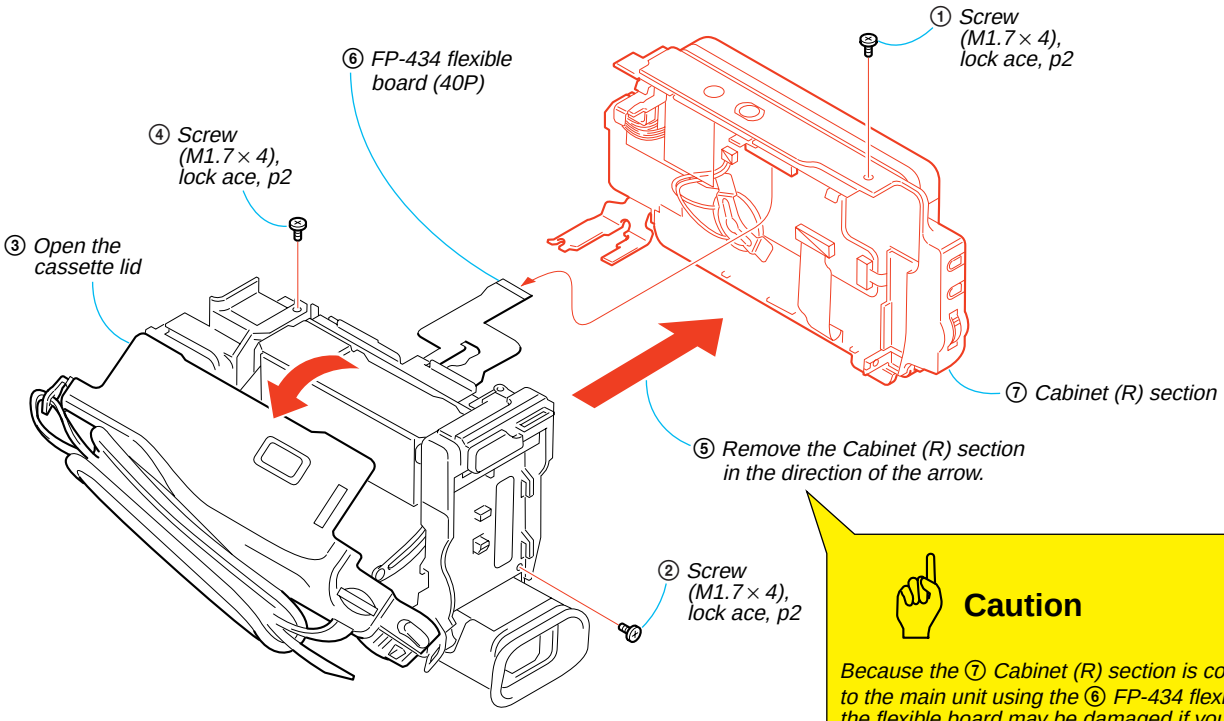
[MA-409 BOARD SERVICE POSITION]



2-5. TOP CABINET ASSEMBLY



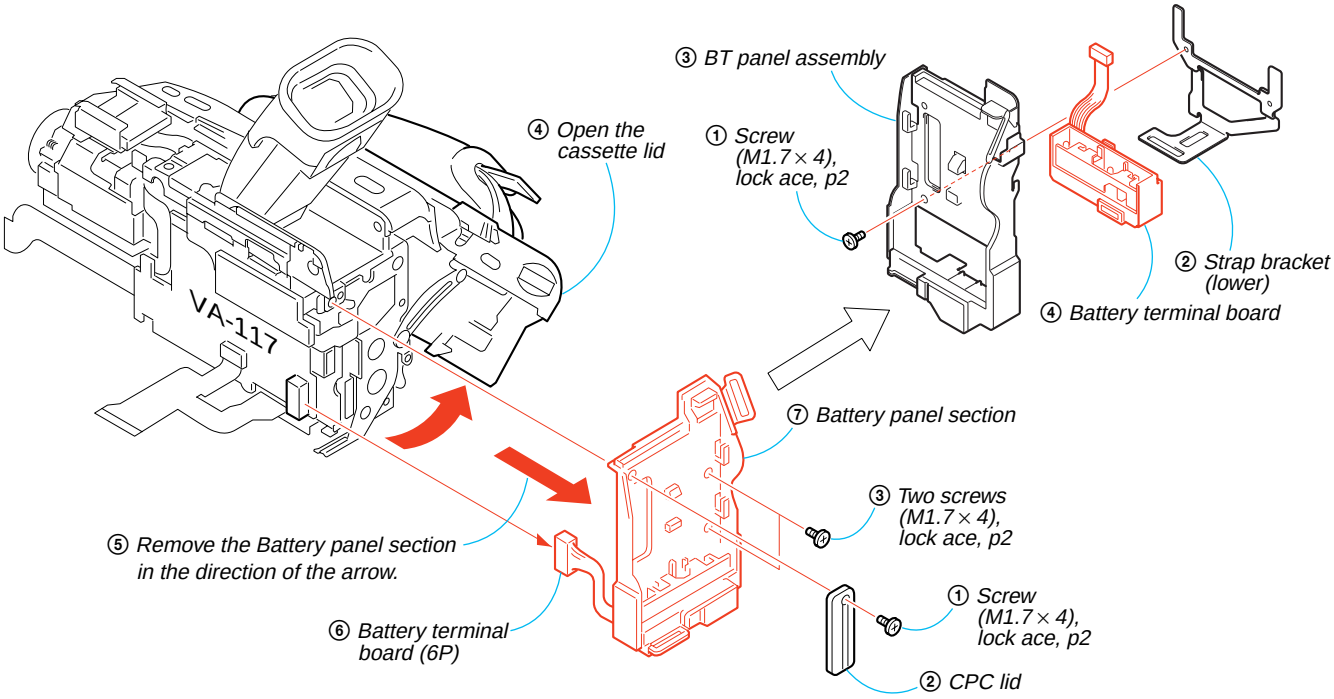
2-6. CABINET (R) SECTION


① Screw (M1.7 × 4), lock ace, p2
⑥ FP-434 flexible board (40P)
④ Screw (M1.7 × 4), lock ace, p2
③ Open the cassette lid
⑦ Cabinet (R) section
⑤ Remove the Cabinet (R) section in the direction of the arrow.
② Screw (M1.7 × 4), lock ace, p2

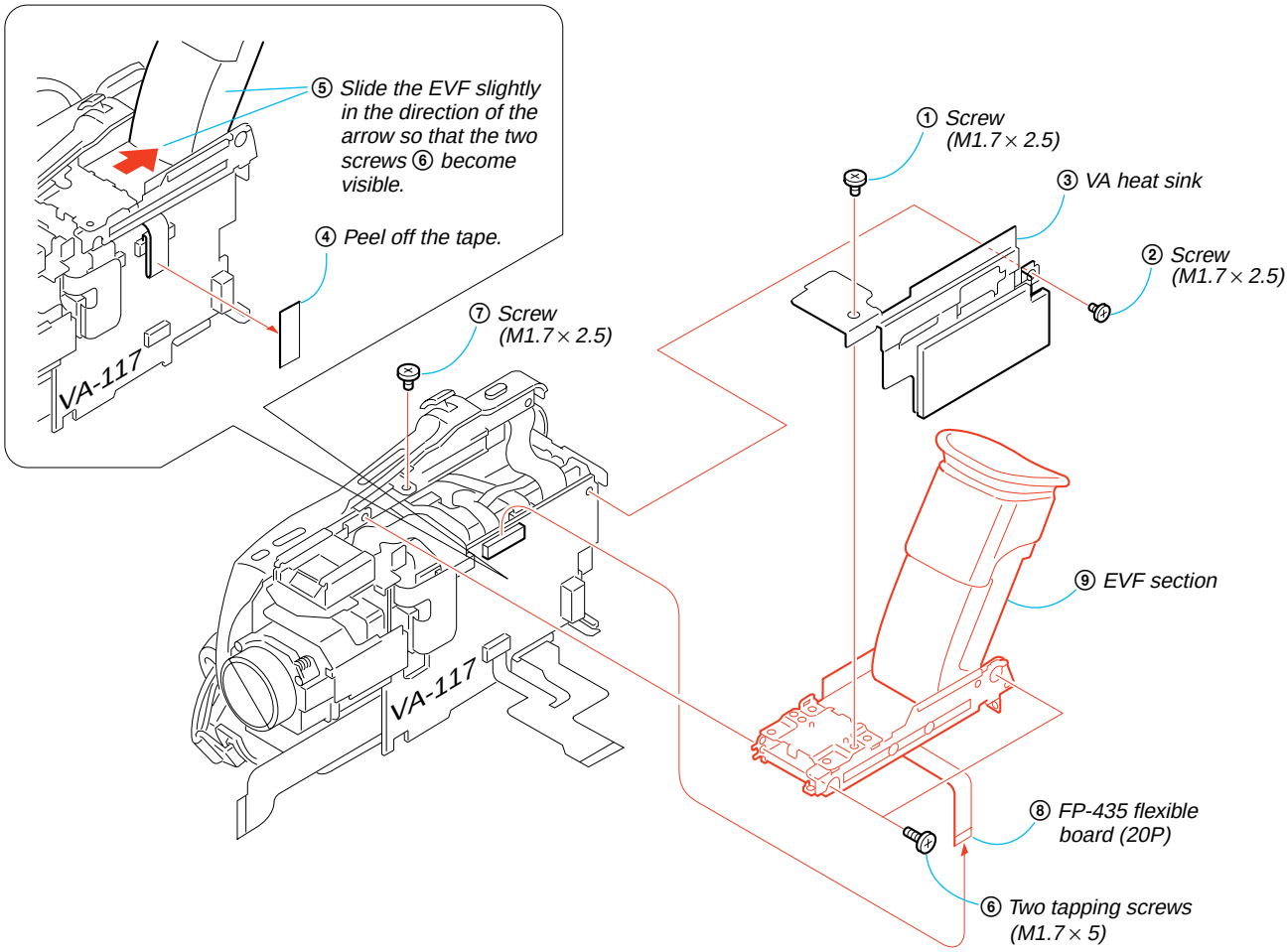
Caution

Because the ⑦ Cabinet (R) section is connected to the main unit using the ⑥ FP-434 flexible board, the flexible board may be damaged if you remove the Cabinet (R) section forcibly. Be very careful not to damage the flexible board.

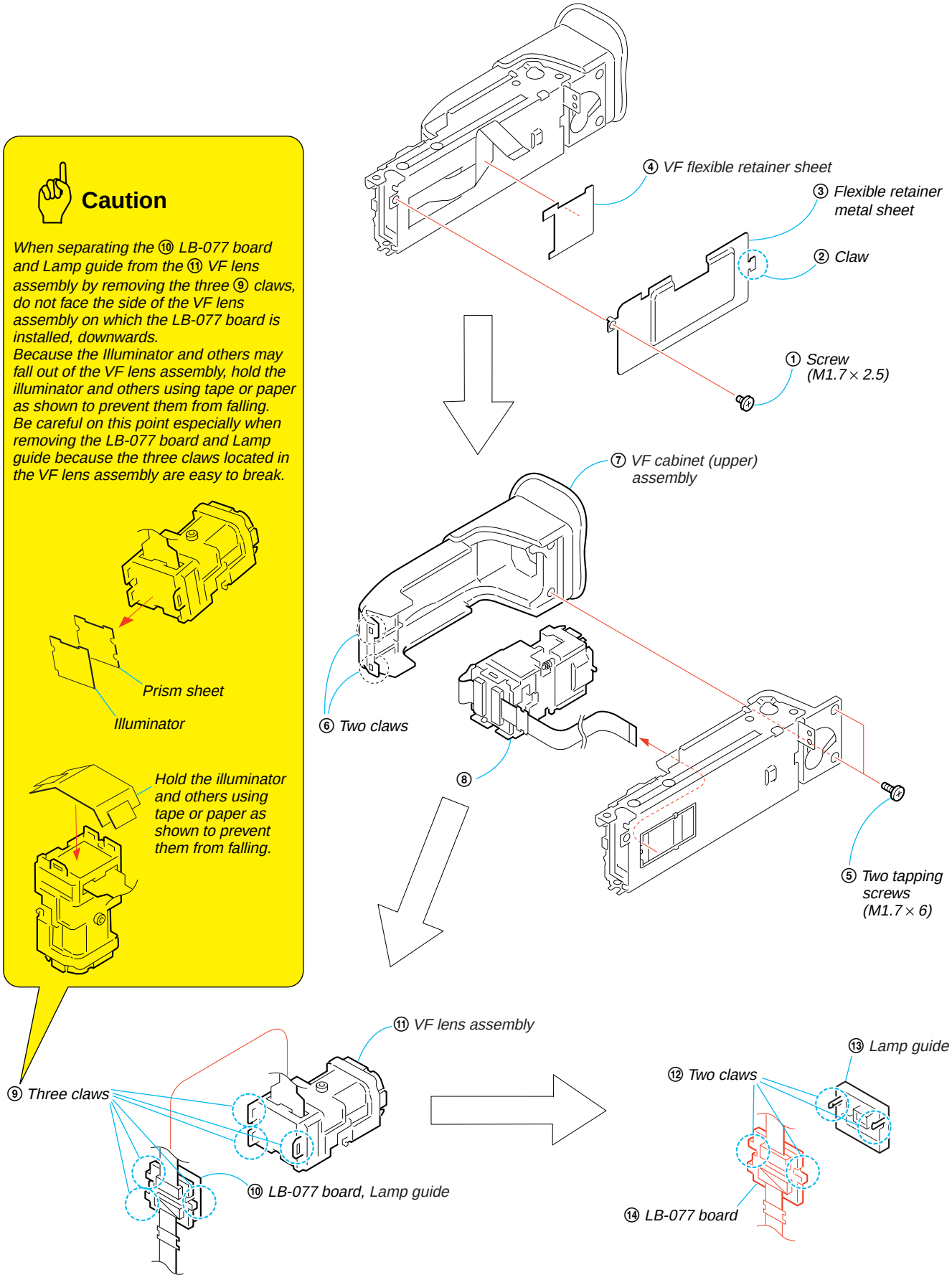
2-7. BATTERY PANEL SECTION


③ BT panel assembly
④ Open the cassette lid
① Screw (M1.7 × 4), lock ace, p2
② Strap bracket (lower)
④ Battery terminal board
VA-117
⑦ Battery panel section
③ Two screws (M1.7 × 4), lock ace, p2
⑤ Remove the Battery panel section in the direction of the arrow.
⑥ Battery terminal board (6P)
① Screw (M1.7 × 4), lock ace, p2
② CPC lid

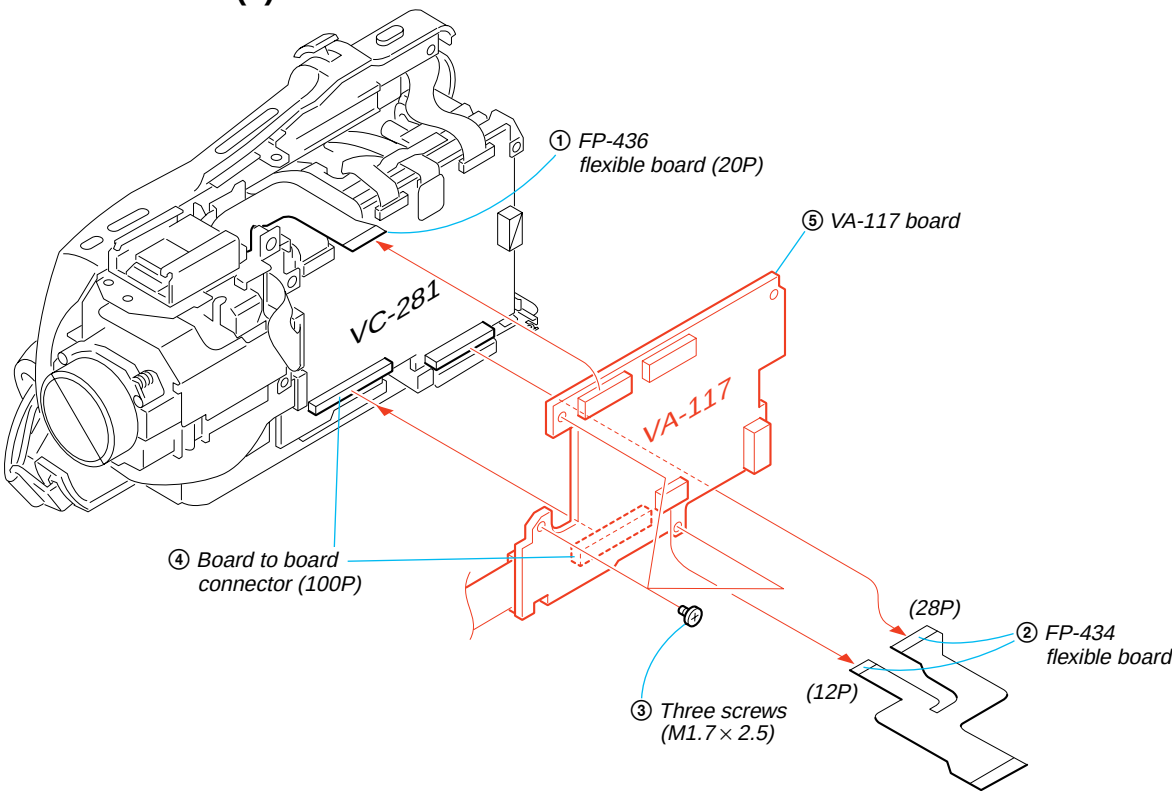
2-8. EVF SECTION


⑤ Slide the EVF slightly in the direction of the arrow so that the two screws ⑥ become visible.
④ Peel off the tape.
VA-117
⑦ Screw (M1.7 × 2.5)
① Screw (M1.7 × 2.5)
③ VA heat sink
② Screw (M1.7 × 2.5)
VA-117
⑨ EVF section
⑧ FP-435 flexible board (20P)
⑥ Two tapping screws (M1.7 × 5)

2-9. LB-077 BOARD


④ VF flexible retainer sheet
③ Flexible retainer metal sheet
② Claw
① Screw (M1.7 × 2.5)
⑦ VF cabinet (upper) assembly
⑥ Two claws
⑧
⑤ Two tapping screws (M1.7 × 6)
⑪ VF lens assembly
⑨ Three claws
⑩ LB-077 board, Lamp guide
⑬ Lamp guide
⑫ Two claws
⑭ LB-077 board
Caution
When separating the ⑩ LB-077 board and Lamp guide from the ⑪ VF lens assembly by removing the three ⑨ claws, do not face the side of the VF lens assembly on which the LB-077 board is installed, downwards.
Because the Illuminator and others may fall out of the VF lens assembly, hold the illuminator and others using tape or paper as shown to prevent them from falling.
Be careful on this point especially when removing the LB-077 board and Lamp guide because the three claws located in the VF lens assembly are easy to break.
Prism sheet
Illuminator
Hold the illuminator and others using tape or paper as shown to prevent them from falling.

2-10. VA-117 BOARD (1)



[VA-117 BOARD SERVICE POSITION]

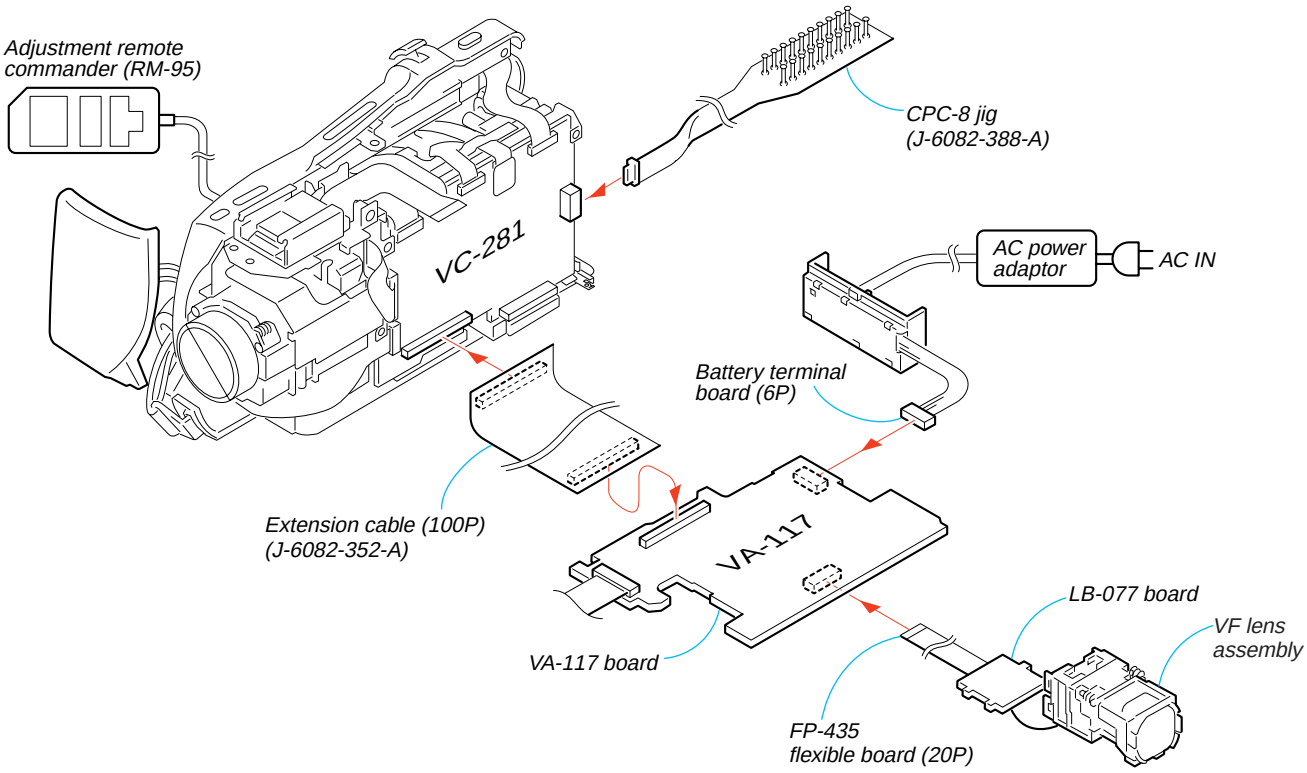
To check the EVF circuit (IC4201 and IC4202), connect the LB-077 board to the VF lens assembly, and then set the camera to the "Forced EVF ON" mode.

Setting the “Forced EVF ON” mode

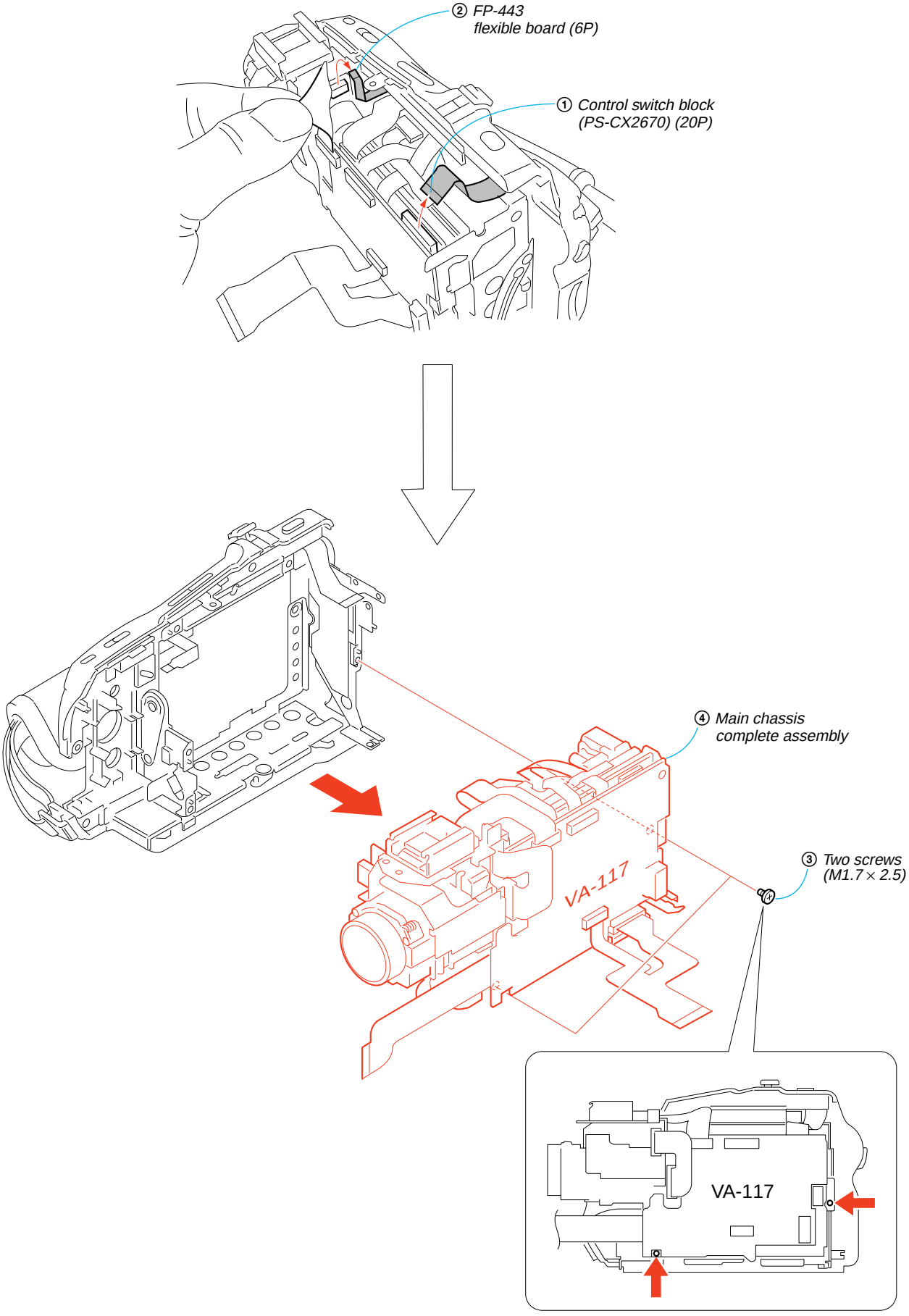
1) Select page: 0, address: 10, and set data: 00.
2) Select page: 3, address: C4, and set data: 67.
3) Select page: 3, address: C5, and set data: 01.

Exiting the “Forced EVF ON” mode

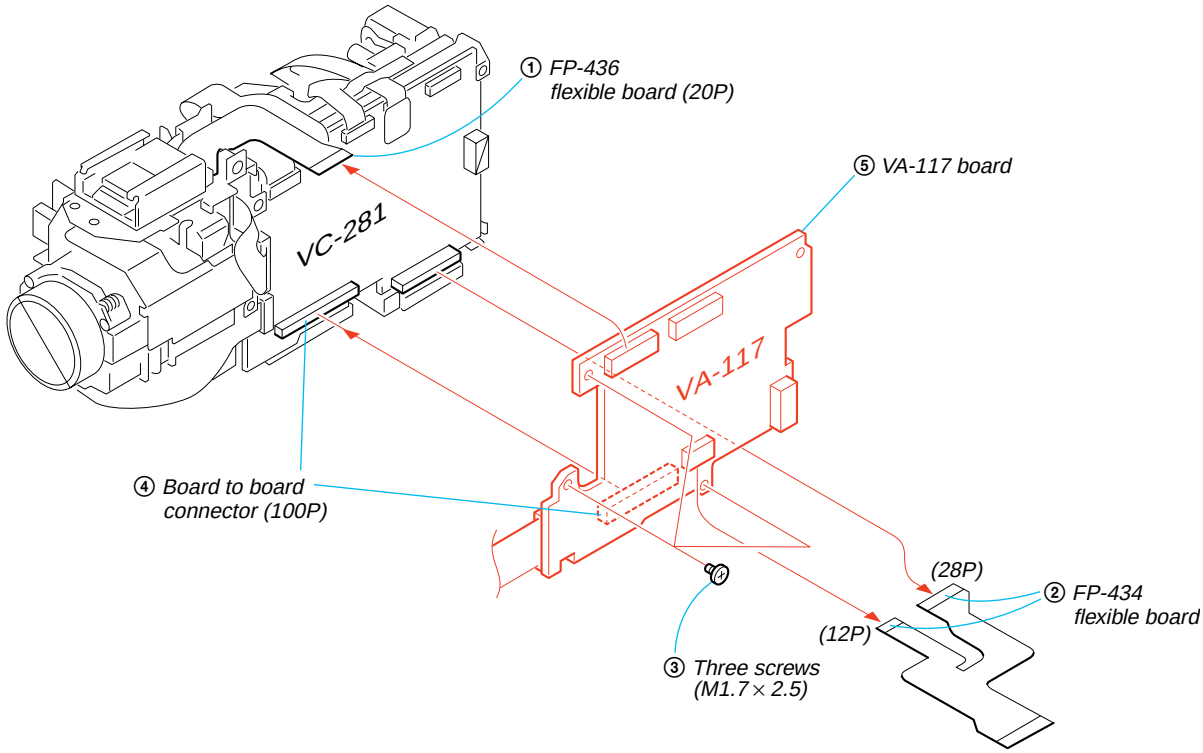
1) Select page: 0, address: 10, and set data: 00.
2) Select page: 3, address: C4, and set data: 00.
3) Select page: 3, address: C5, and set data: 00.



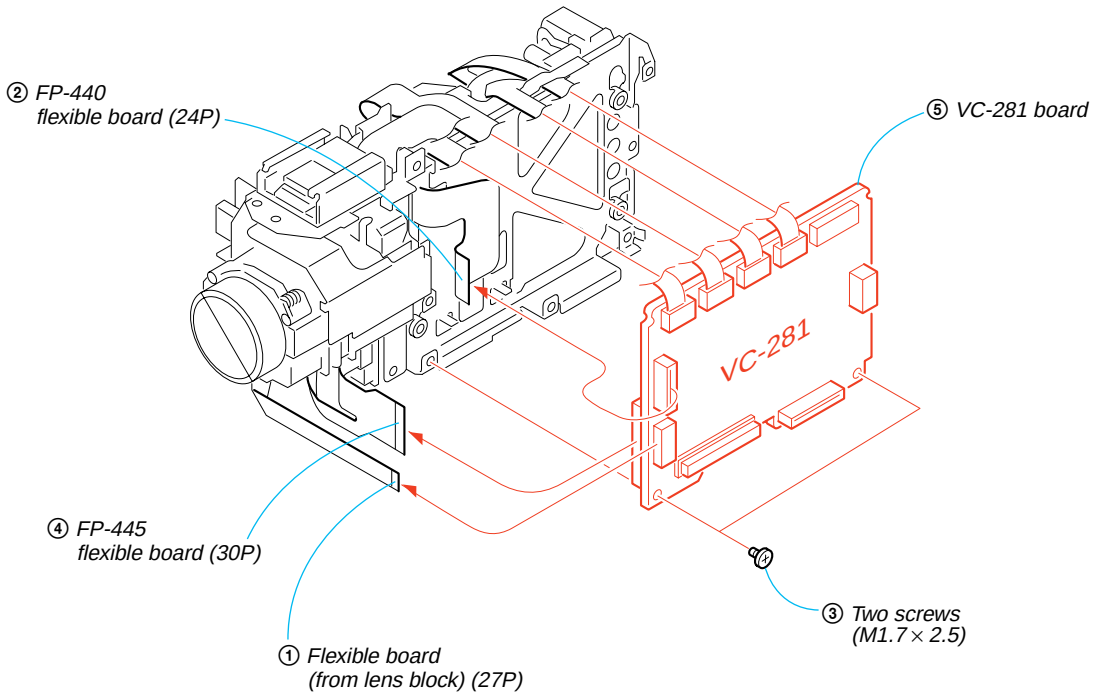
2-11. MAIN CHASSIS COMPLETE ASSEMBLY



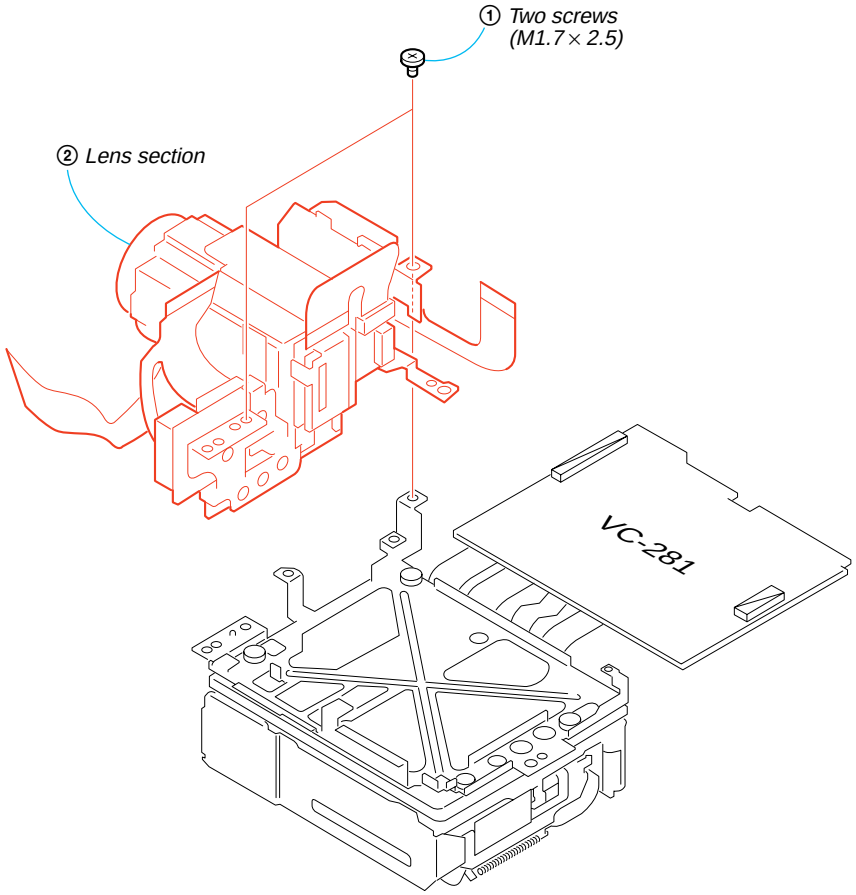
2-12. VA-117 BOARD (2)



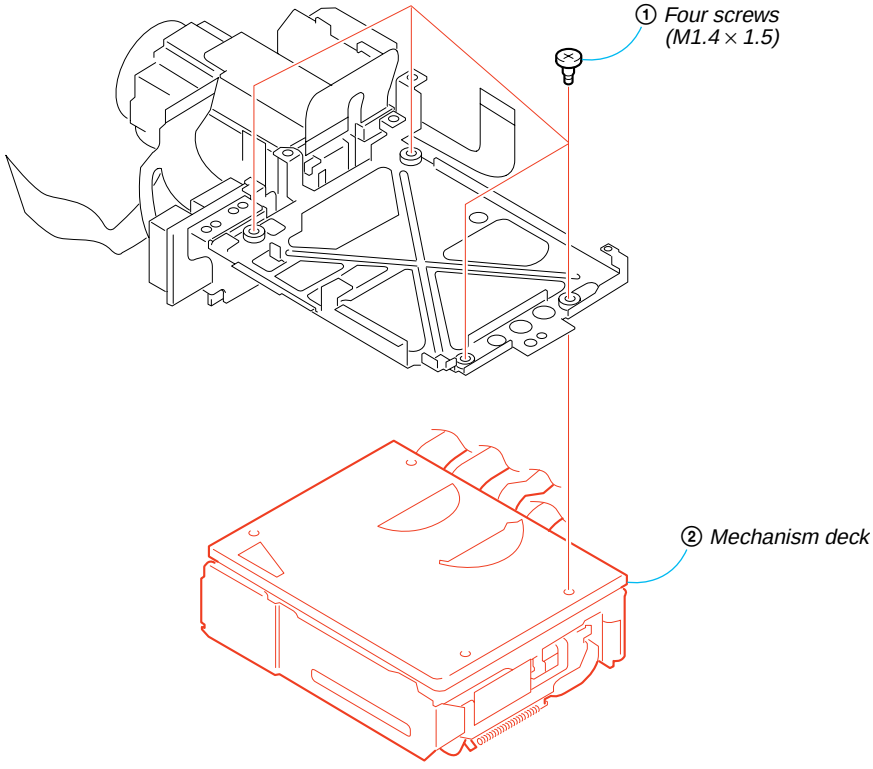
2-13. VC-281 BOARD



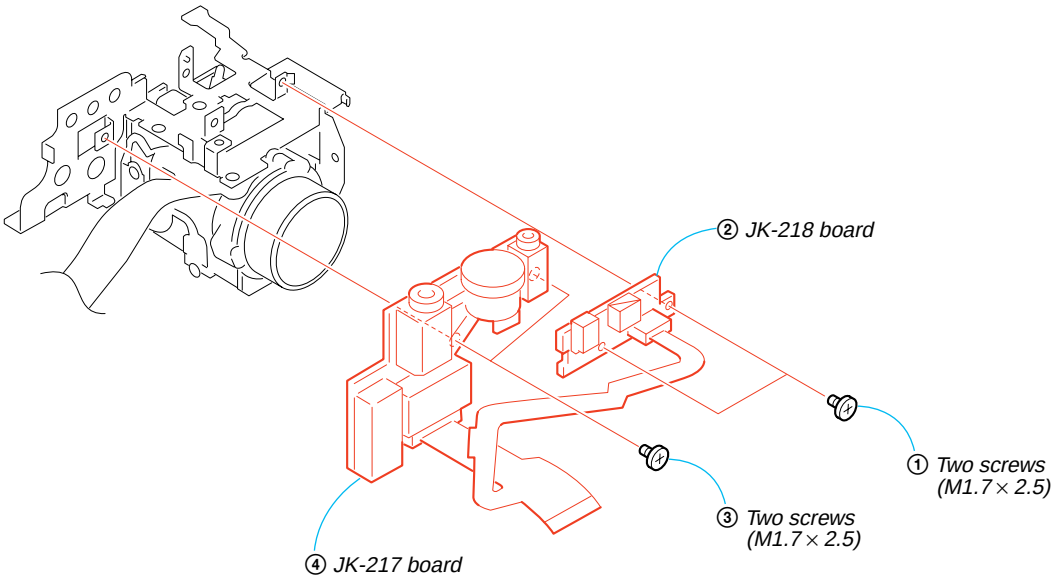
2-14. LENS SECTION



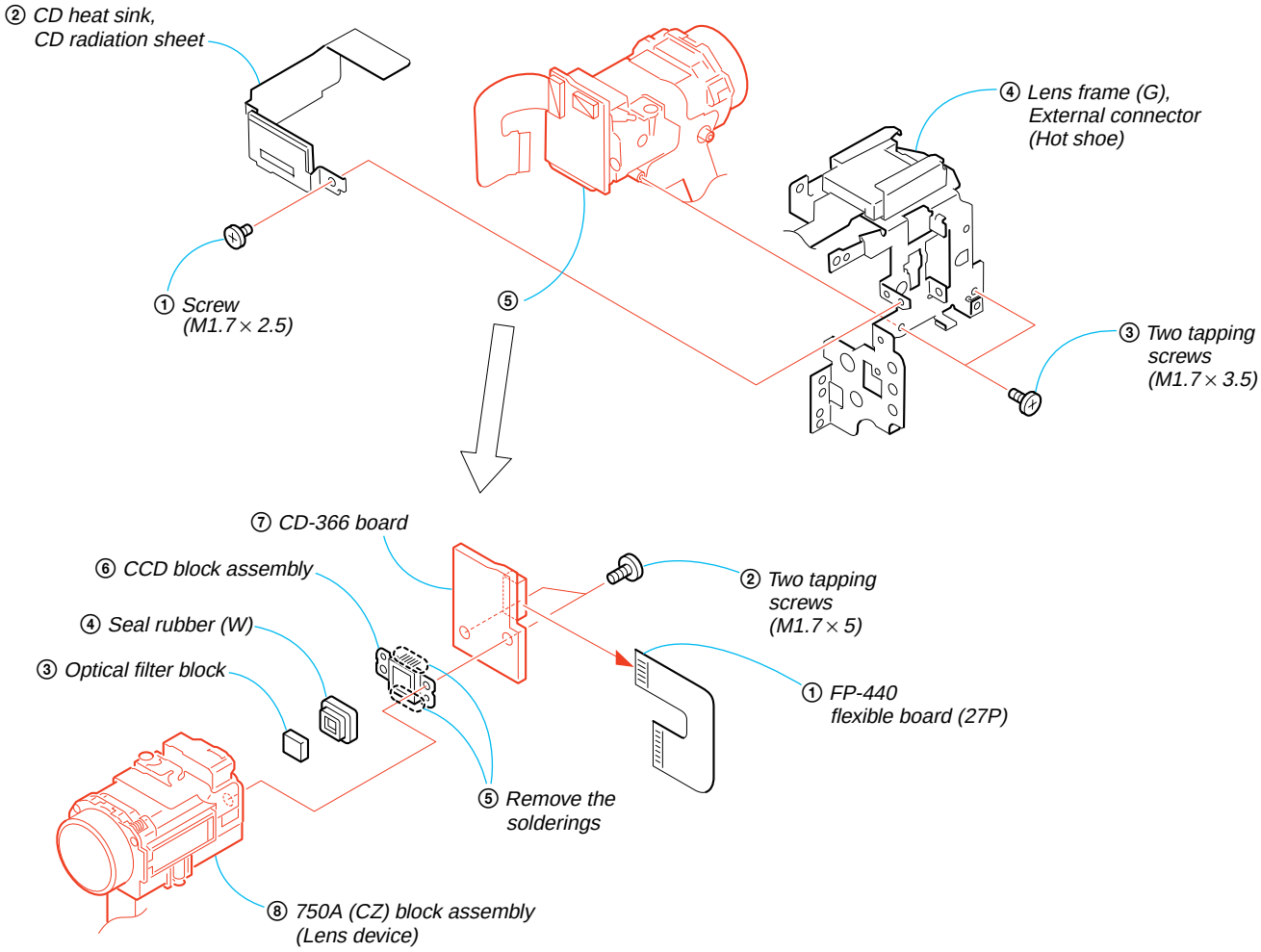
2-15. MECHANISM DECK



2-16. JK-217, JK-218 BOARDS



2-17. CD-366 BOARD, 750A (CZ) BLOCK ASSEMBLY (LENS DEVICE)


② CD heat sink, CD radiation sheet
④ Lens frame (G), External connector (Hot shoe)
① Screw (M1.7 × 2.5)
⑤
③ Two tapping screws (M1.7 × 3.5)
⑦ CD-366 board
⑥ CCD block assembly
② Two tapping screws (M1.7 × 5)
④ Seal rubber (W)
③ Optical filter block
① FP-440 flexible board (27P)
⑤ Remove the solderings
⑧ 750A (CZ) block assembly (Lens device)

[SERVICE POSITION TO CHECK THE VTR SECTION]

Connection to Check the VTR Section

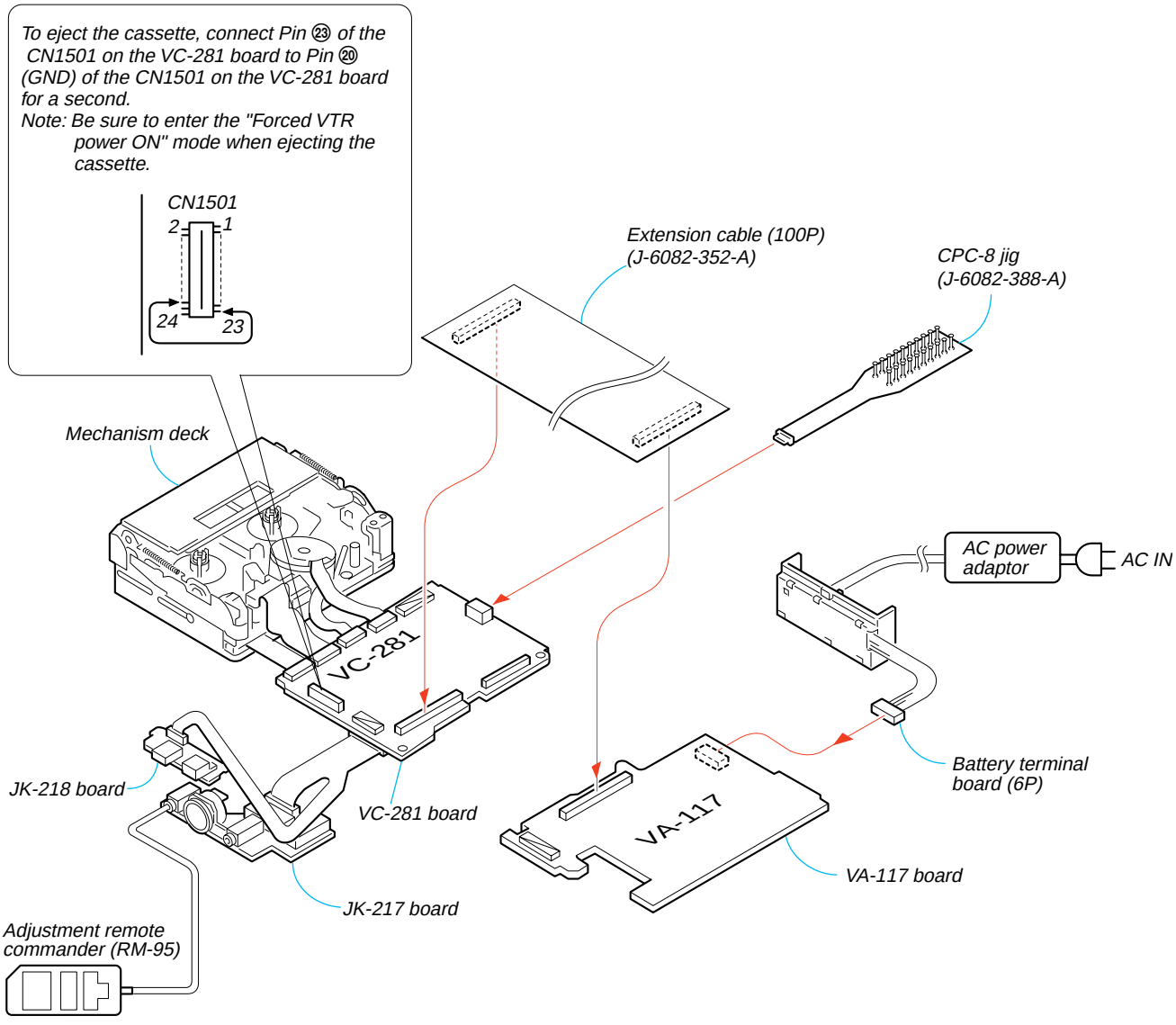
To check the VTR section, set the VTR to the “Forced VTR power ON” mode.
Operate the VTR functions using the adjustment remote commander (with the HOLD switch set in the OFF position).

Setting the “Forced VTR Power ON” mode

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 0, address: 10, and set data: 00.
3) Select page: D, address: 10, set data: 02, and press the PAUSE button of the adjustment remote commander.

Exiting the “Forced VTR Power ON” mode

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 0, address: 10, and set data: 00.
3) Select page: D, address: 10, set data: 00, and press the PAUSE button of the adjustment remote commander.
4) Select page: 0, address: 01, and set data: 00.


To eject the cassette, connect Pin ㉓ of the CN1501 on the VC-281 board to Pin ⑳ (GND) of the CN1501 on the VC-281 board for a second.
Note: Be sure to enter the "Forced VTR power ON" mode when ejecting the cassette.
CN1501
2
1
24
23
Extension cable (100P) (J-6082-352-A)
CPC-8 jig (J-6082-388-A)
Mechanism deck
VC-281
AC power adaptor
AC IN
JK-218 board
VC-281 board
VA-117
Battery terminal board (6P)
VA-117 board
JK-217 board
Adjustment remote commander (RM-95)

[SERVICE POSITION TO CHECK THE CAMERA SECTION]

Connection to Check the Camera Section

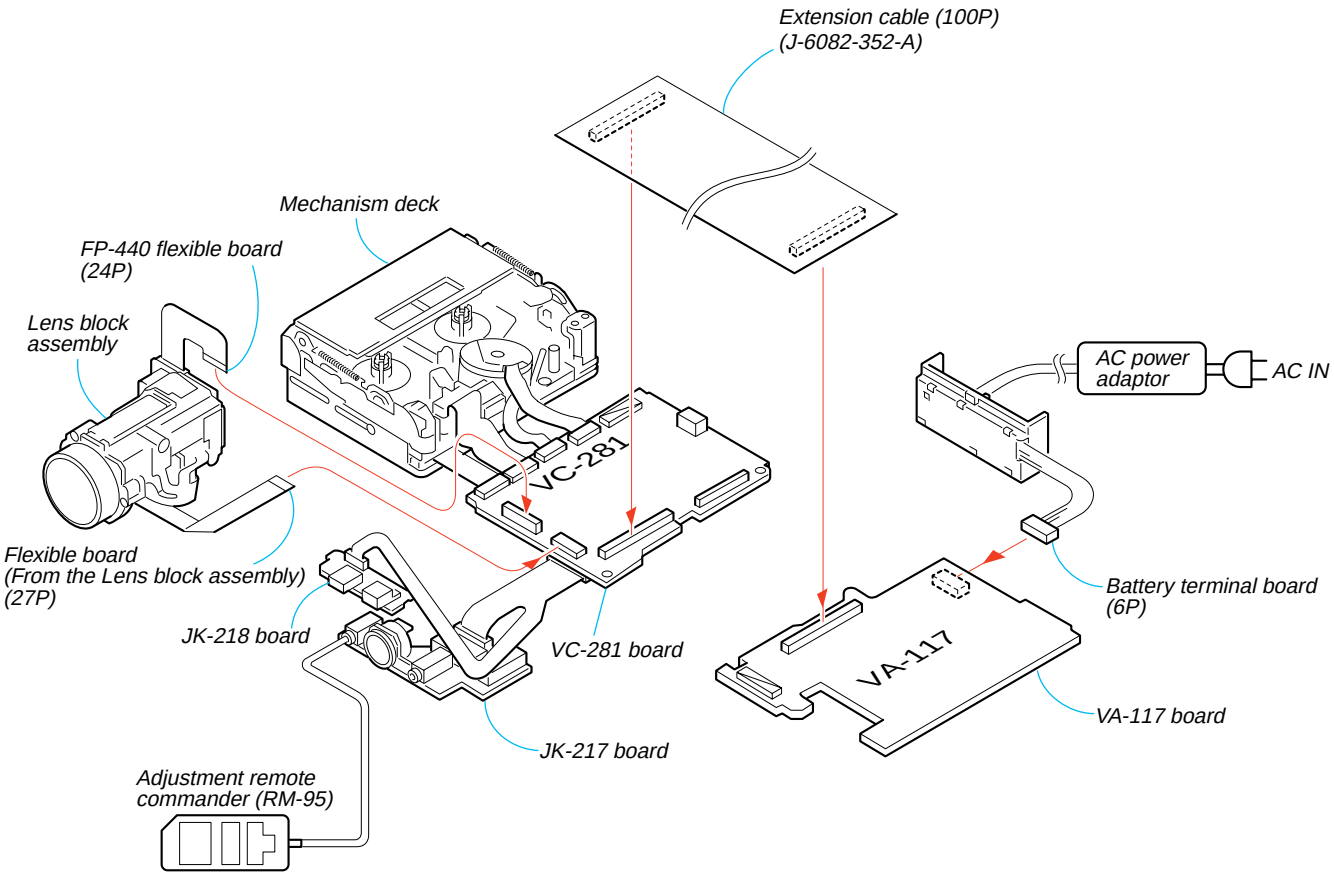
To check the CAMERA section, set the CAMERA to the “Forced camera power ON” mode.
When you want to operate the ZOOM and FOCUS, use the controls on the remote commander (with HOLD switch off).

Setting the “Forced Camera Power ON” mode

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 0, address: 10, and set data: 00.
3) Select page: D, address: 10, set data: 01, and press the PAUSE button of the adjustment remote commander.

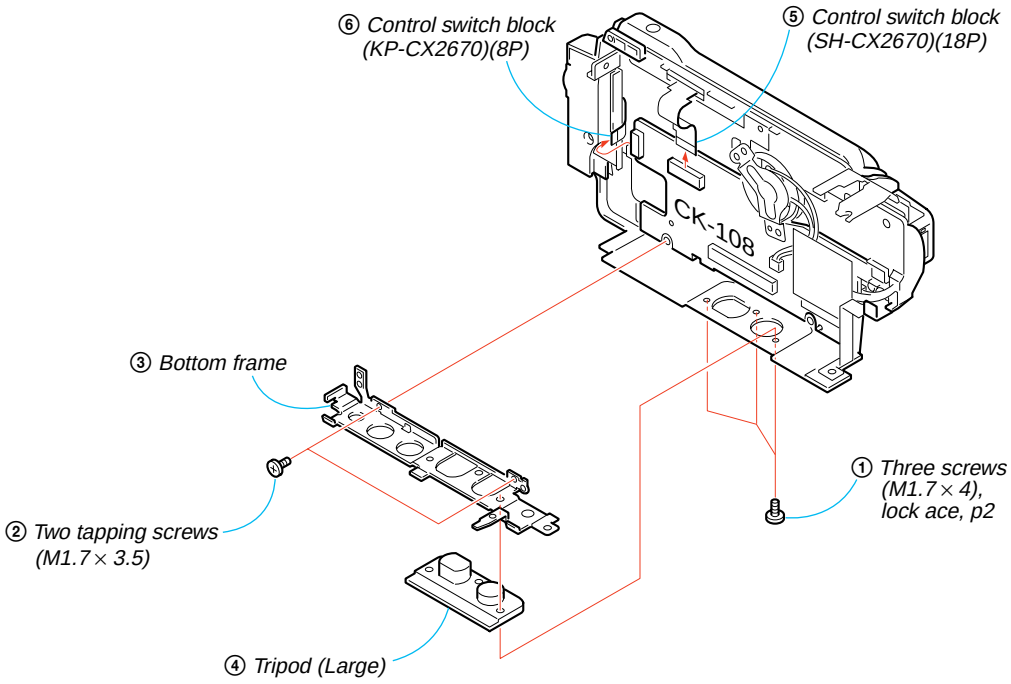
Exiting the “Forced Camera Power ON” mode

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 0, address: 10, and set data: 00.
3) Select page: D, address: 10, set data: 00, and press the PAUSE button of the adjustment remote commander.
4) Select page: 0, address: 01, and set data: 00.

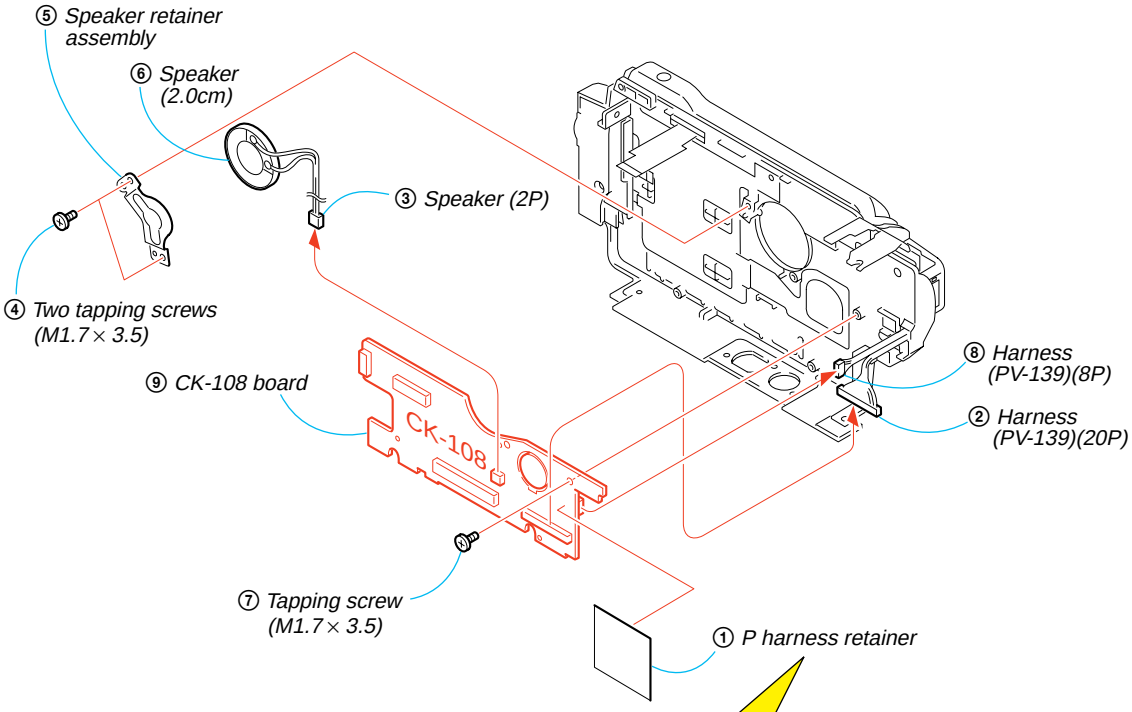


2-18. CK-108 BOARD

< STEP 1 >

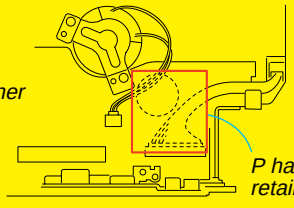

⑥ Control switch block (KP-CX2670)(8P)
⑤ Control switch block (SH-CX2670)(18P)
CK-108
③ Bottom frame
① Three screws (M1.7 × 4), lock ace, p2
② Two tapping screws (M1.7 × 3.5)
④ Tripod (Large)

< STEP 2 >



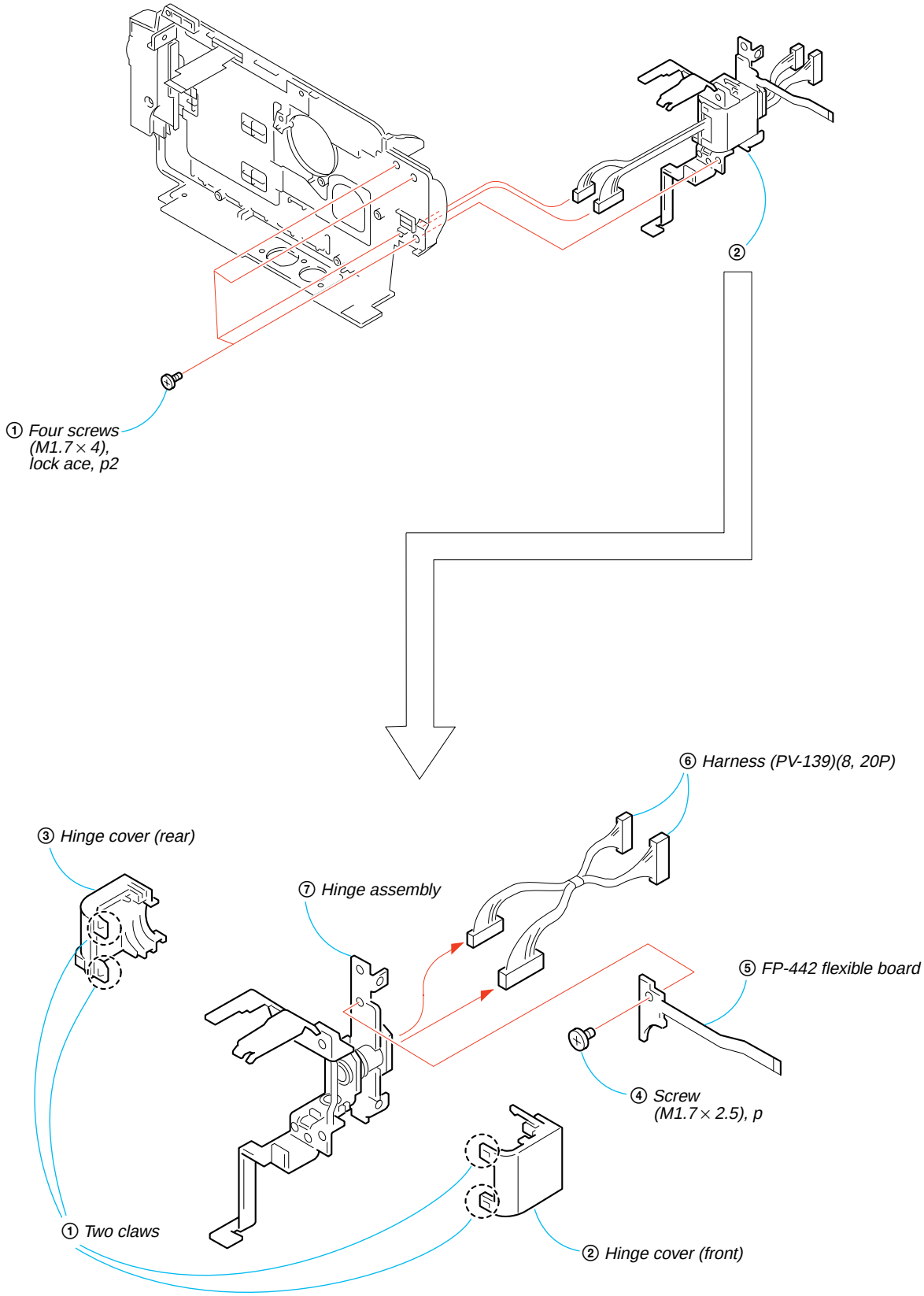
Caution

Attach the ① P harness retainer so that the harness does not come out as shown.



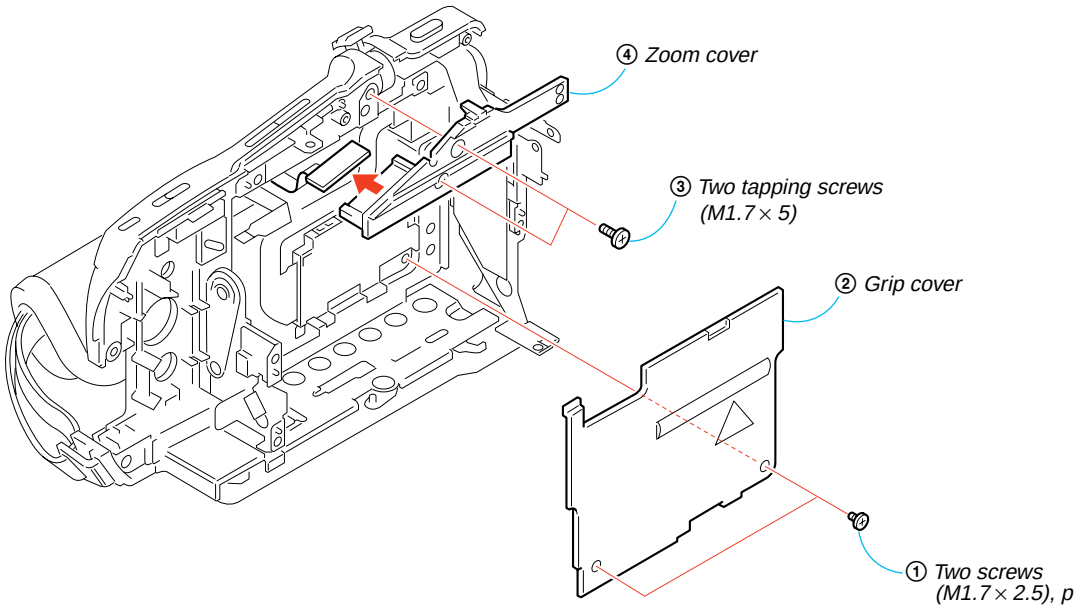
2-19. HINGE ASSEMBLY

(Before starting disassembling, remove the LCD unit referring to section 2-1)

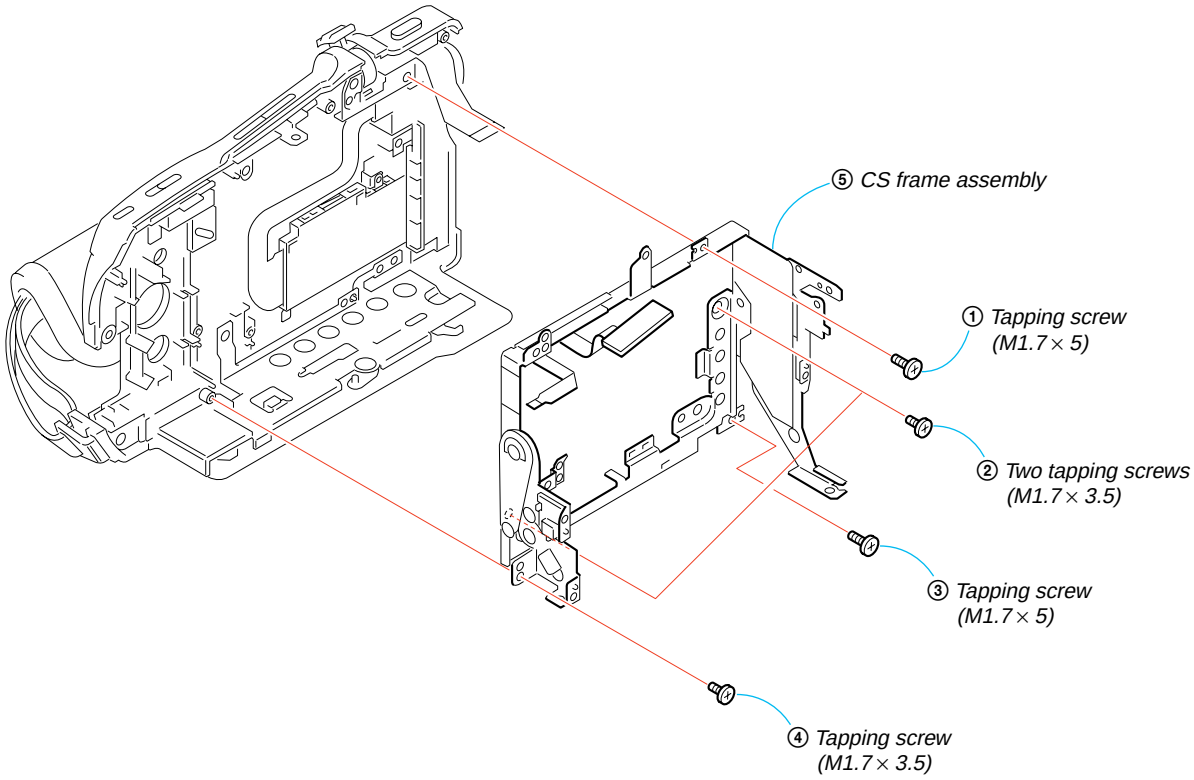

① Four screws (M1.7 × 4), lock ace, p2
②
⑥ Harness (PV-139)(8, 20P)
③ Hinge cover (rear)
⑦ Hinge assembly
⑤ FP-442 flexible board
④ Screw (M1.7 × 2.5), p
① Two claws
② Hinge cover (front)

2-20. CONTROL SWITCH BLOCK (PS-CX2670)

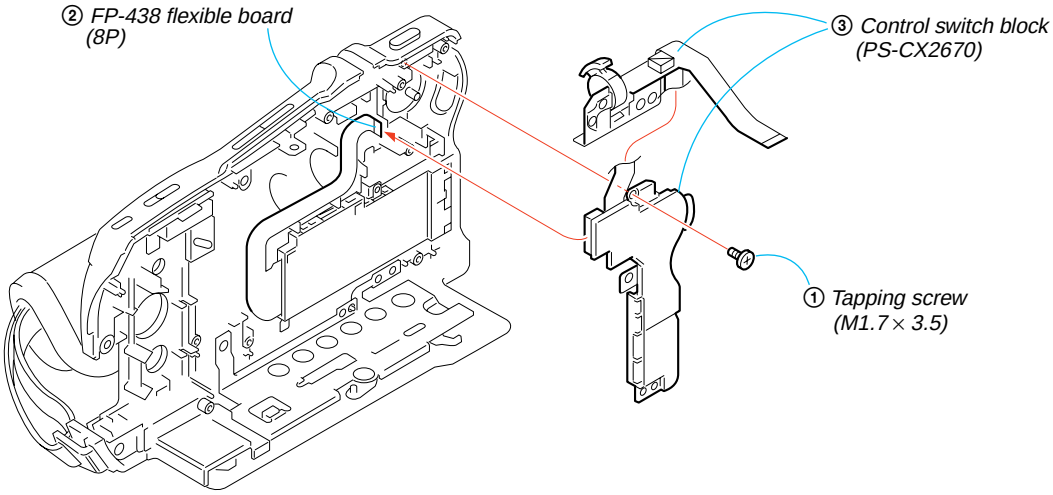
< STEP 1 >



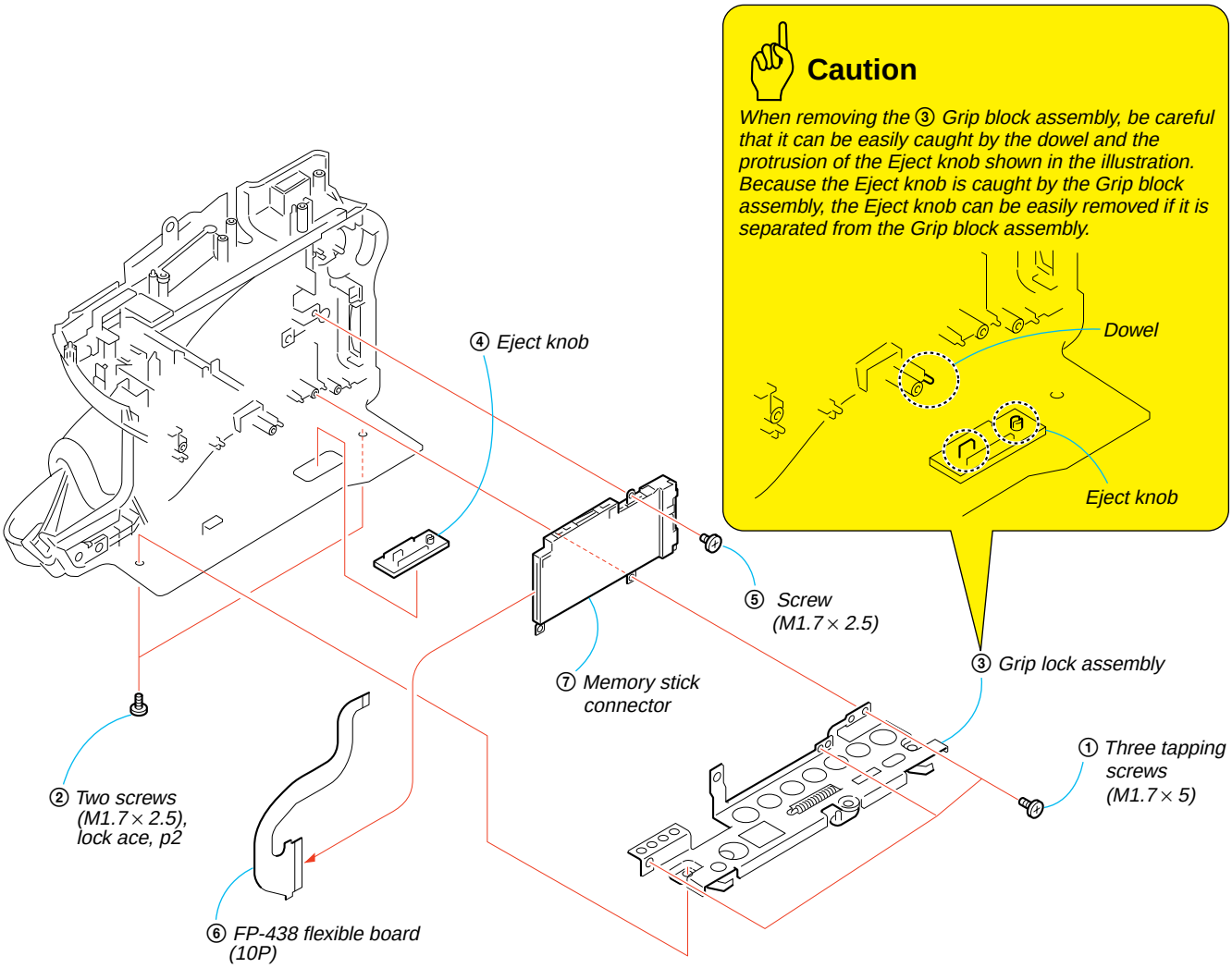
< STEP 2 >



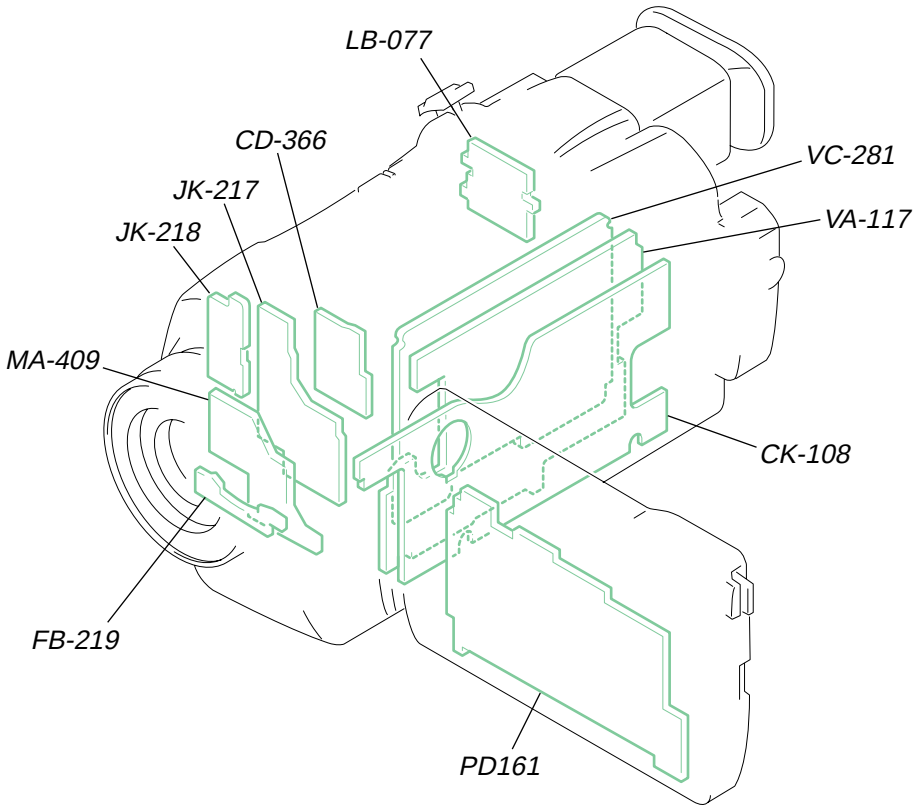
< STEP 3 >



2-21. MEMORY STICK CONNECTOR


Caution
When removing the ③ Grip block assembly, be careful that it can be easily caught by the dowel and the protrusion of the Eject knob shown in the illustration. Because the Eject knob is caught by the Grip block assembly, the Eject knob can be easily removed if it is separated from the Grip block assembly.
Dowel
Eject knob
④ Eject knob
⑤ Screw (M1.7 × 2.5)
⑦ Memory stick connector
③ Grip lock assembly
① Three tapping screws (M1.7 × 5)
② Two screws (M1.7 × 2.5), lock ace, p2
⑥ FP-438 flexible board (10P)

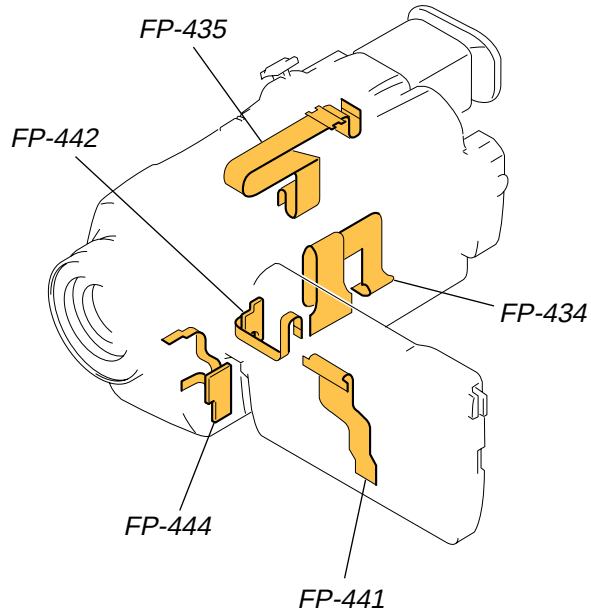
2-22. CIRCUIT BOARDS LOCATION

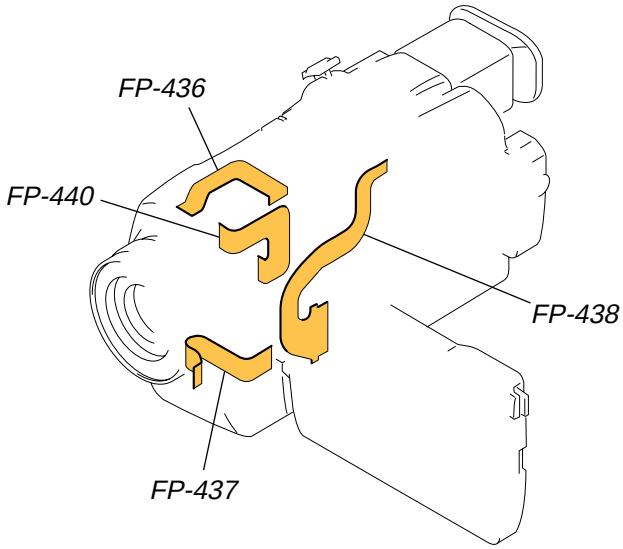


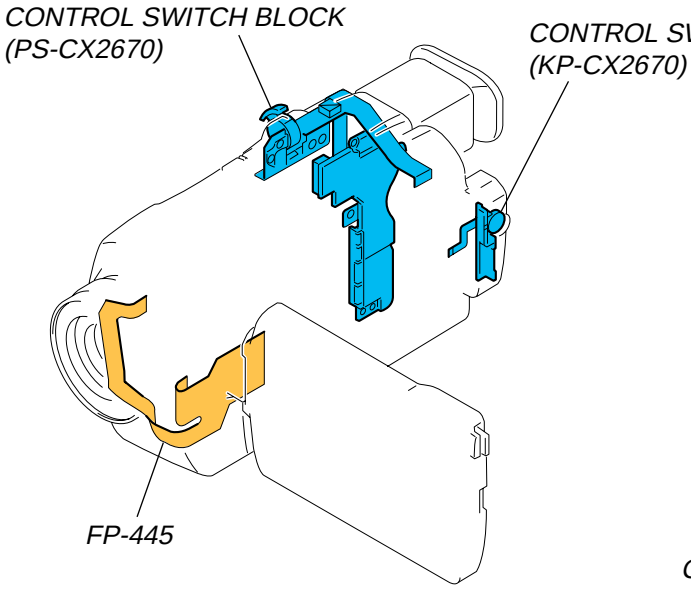
NAME	FUNCTION
CD-366	CCD IMAGER
CK-108	SWITCH, CONNECTOR
FB-219	MANUAL FOCUS SENSOR
JK-217	STEADY SHOT, A/V IN/OUT
JK-218	DIGITAL IN/OUT
LB-077	EVF, EVF BACK LIGHT
MA-409	MIC IN, HP JACK, REMOTE CONTROL RECEIVER, SWITCH
PD-161	RGB DRIVE, TIMING GENERATOR, LCD DRIVE, BACK LIGHT
VA-117	AUDIO/VIDEO SIGNAL PROCESS
VC-281	CAMERA PROCESS, MPEG/DIGITAL STILL PROCESS, VIDEO/AUDIO SIGNAL PROCESS, SERVO, CAMERA/MECHA/HI CONTROL

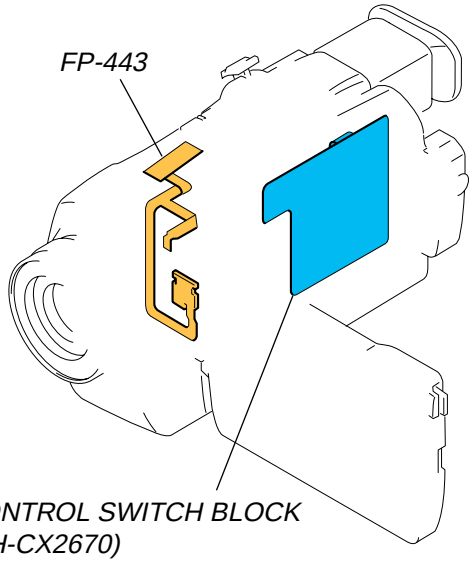
2-23. FLEXIBLE BOARDS LOCATION

The flexible boards contained in the mechanism deck are not shown.









COVER

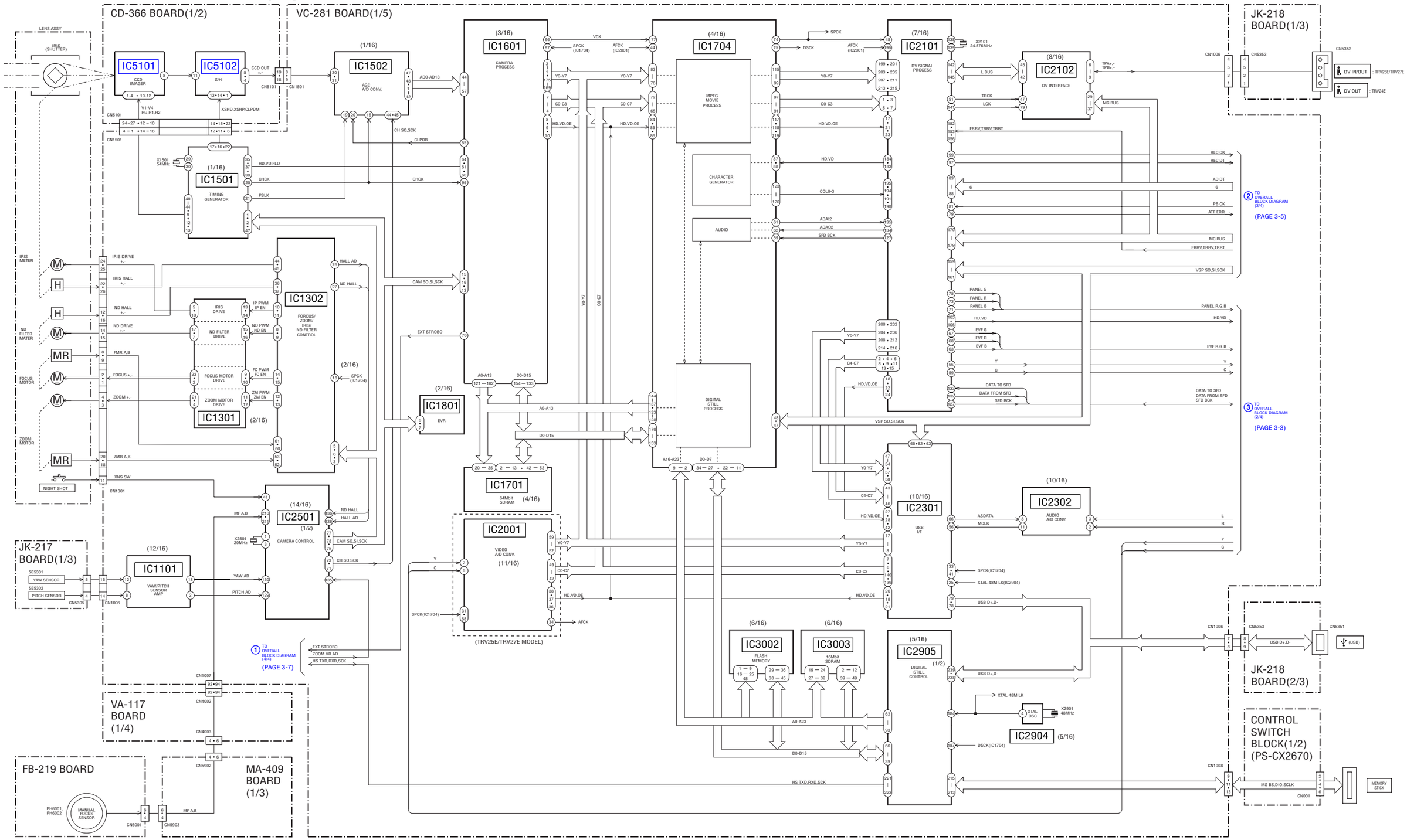
3. BLOCK DIAGRAMS

Link

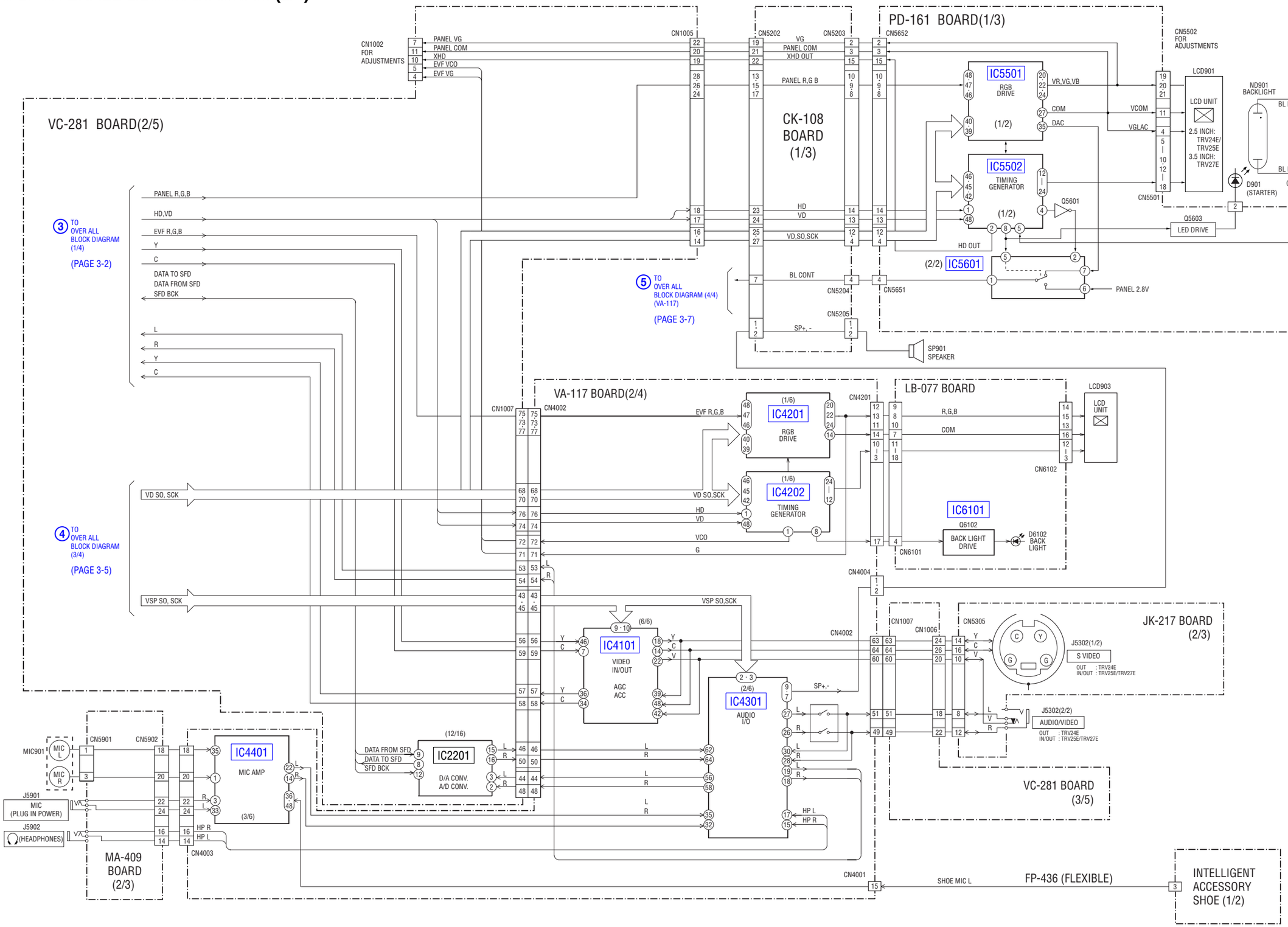
OVERALL BLOCK DIAGRAM (1/4)	POWER BLOCK DIAGRAM (1/3)
OVERALL BLOCK DIAGRAM (2/4)	POWER BLOCK DIAGRAM (2/3)
OVERALL BLOCK DIAGRAM (3/4)	POWER BLOCK DIAGRAM (3/3)
OVERALL BLOCK DIAGRAM (4/4)	

3-1. OVERALL BLOCK DIAGRAM (1/4)

( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.

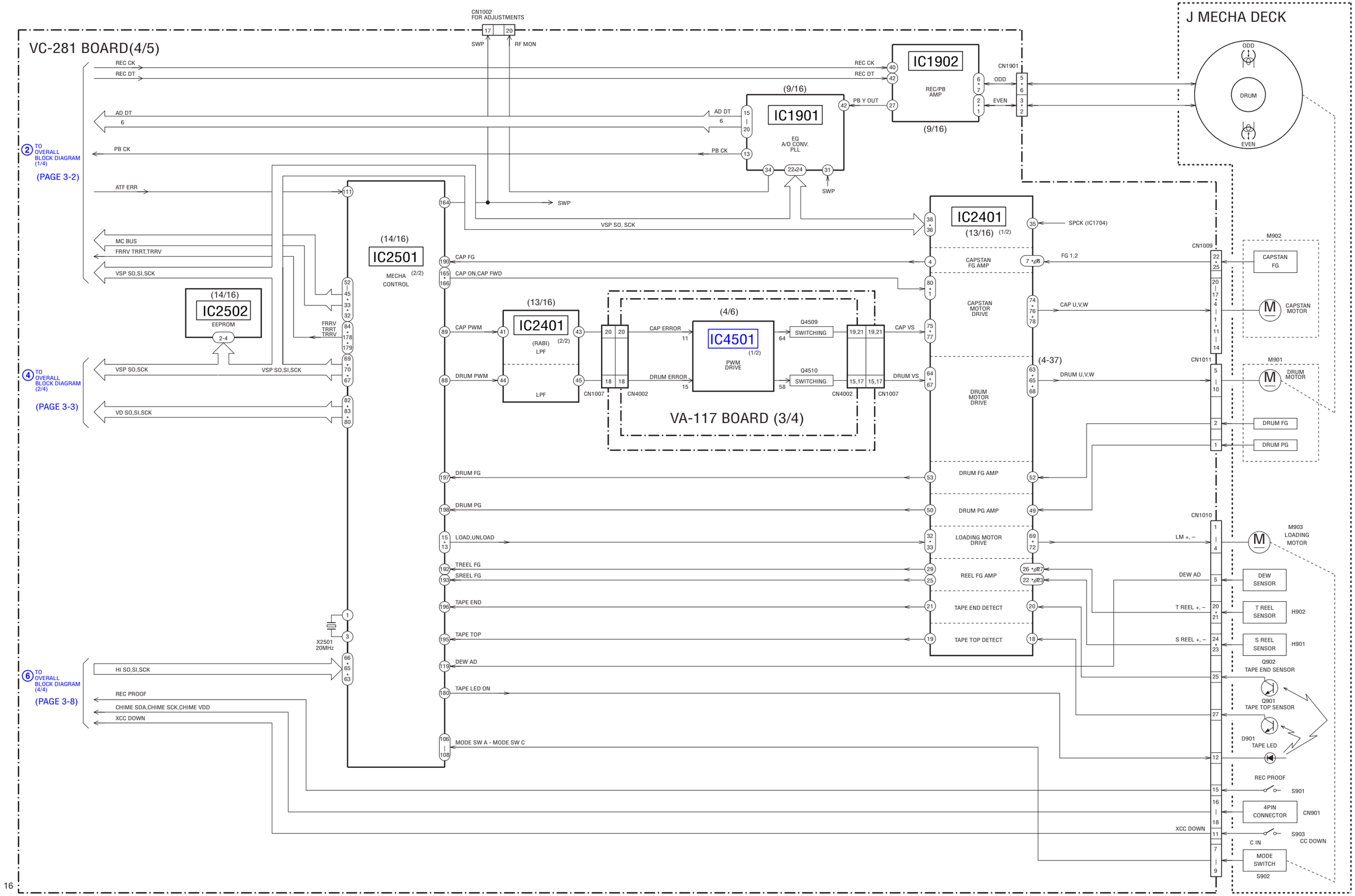


3-2. OVERALL BLOCK DIAGRAM (2/4)



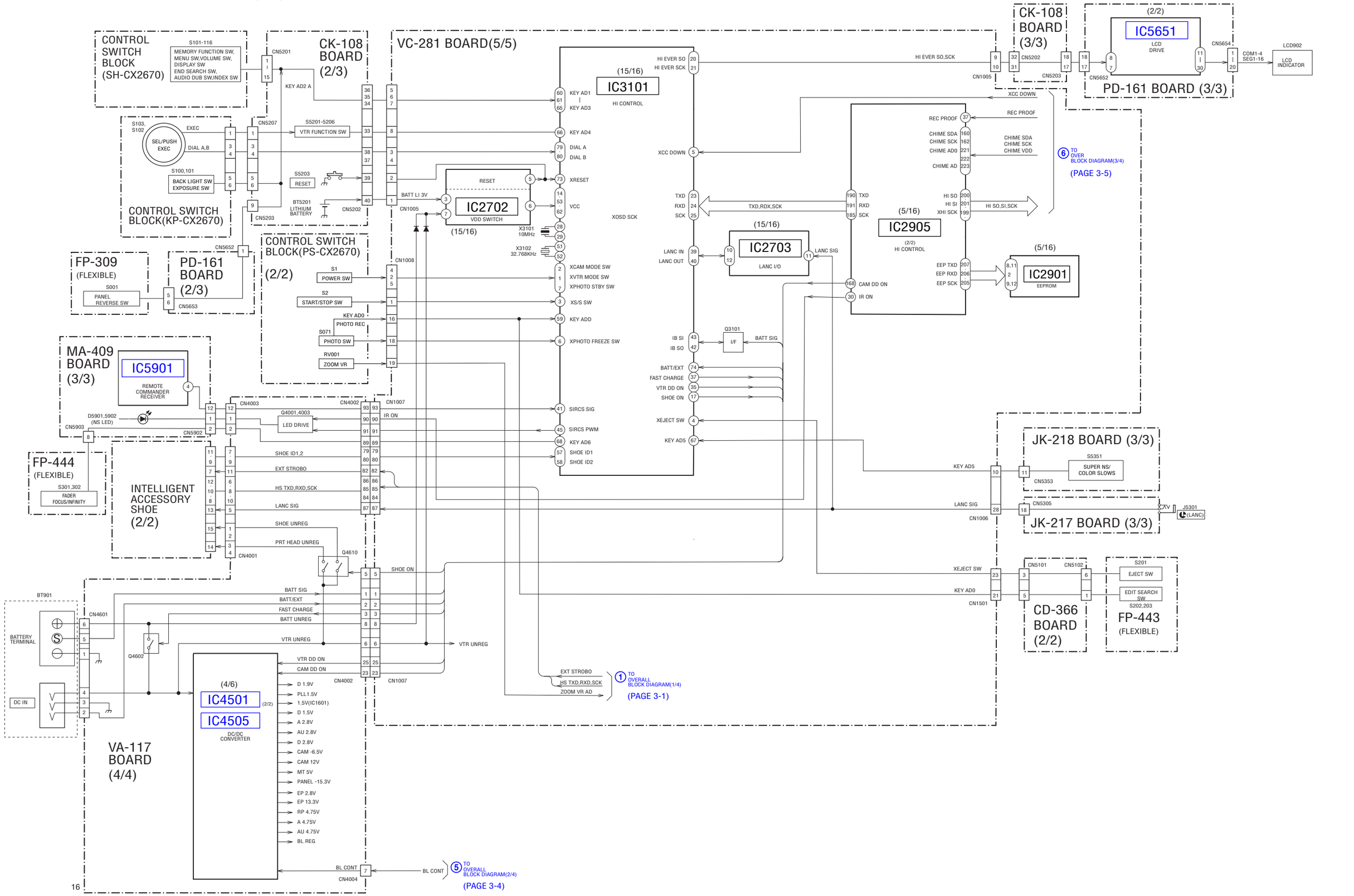
3-3. OVERALL BLOCK DIAGRAM (3/4)

( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.



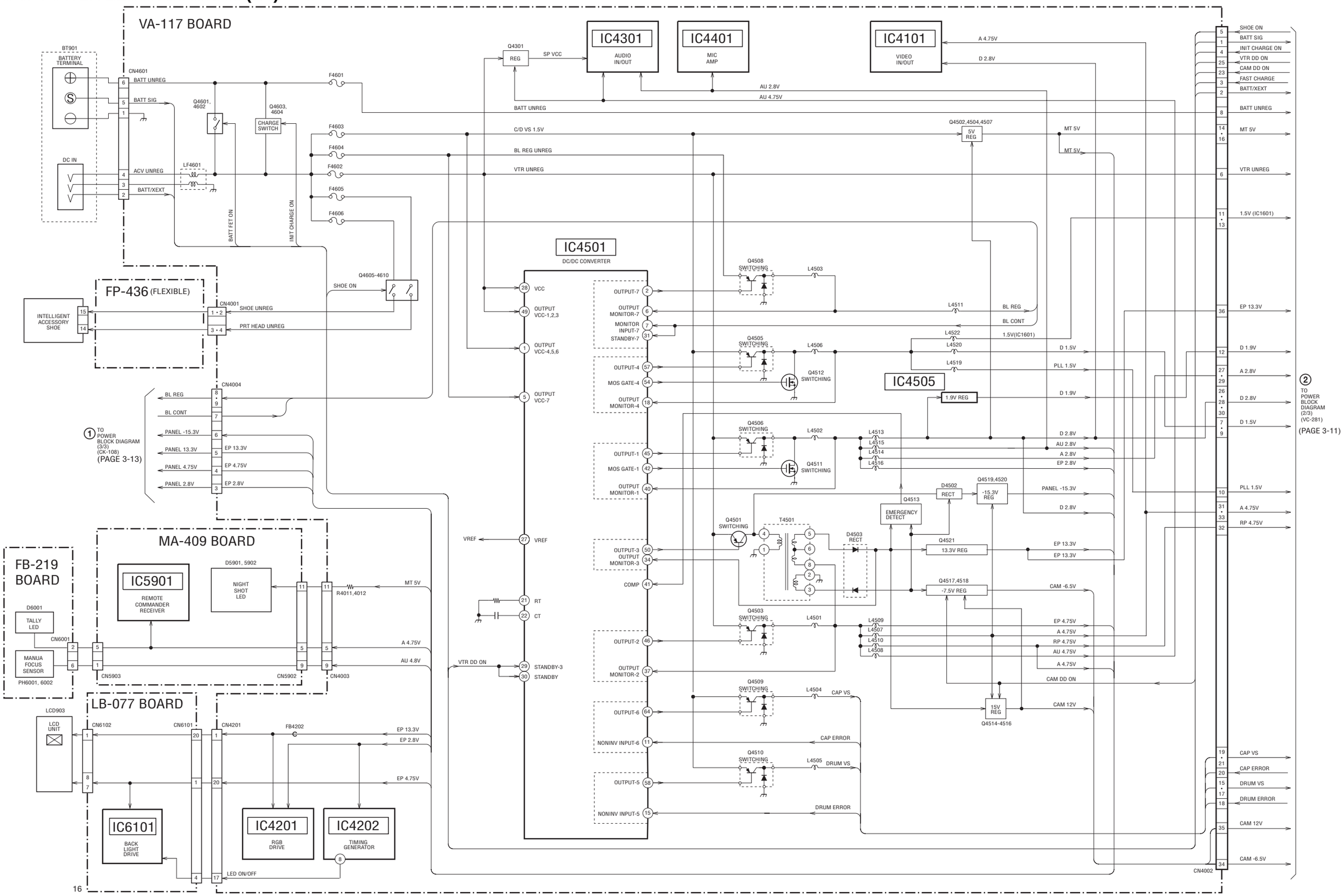
3-4. OVERALL BLOCK DIAGRAM (4/4)

( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.



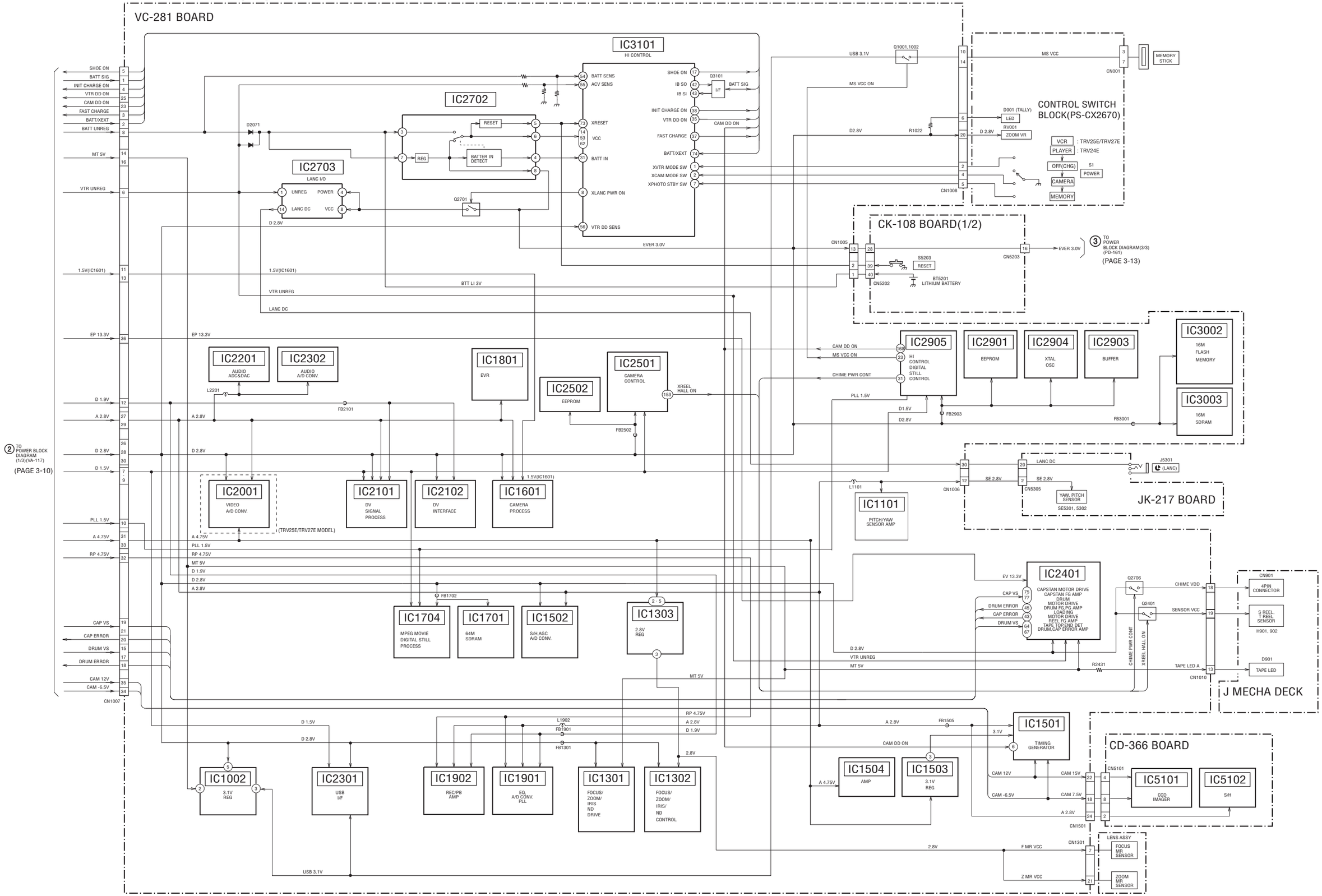
3-5. POWER BLOCK DIAGRAM (1/3)

( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.



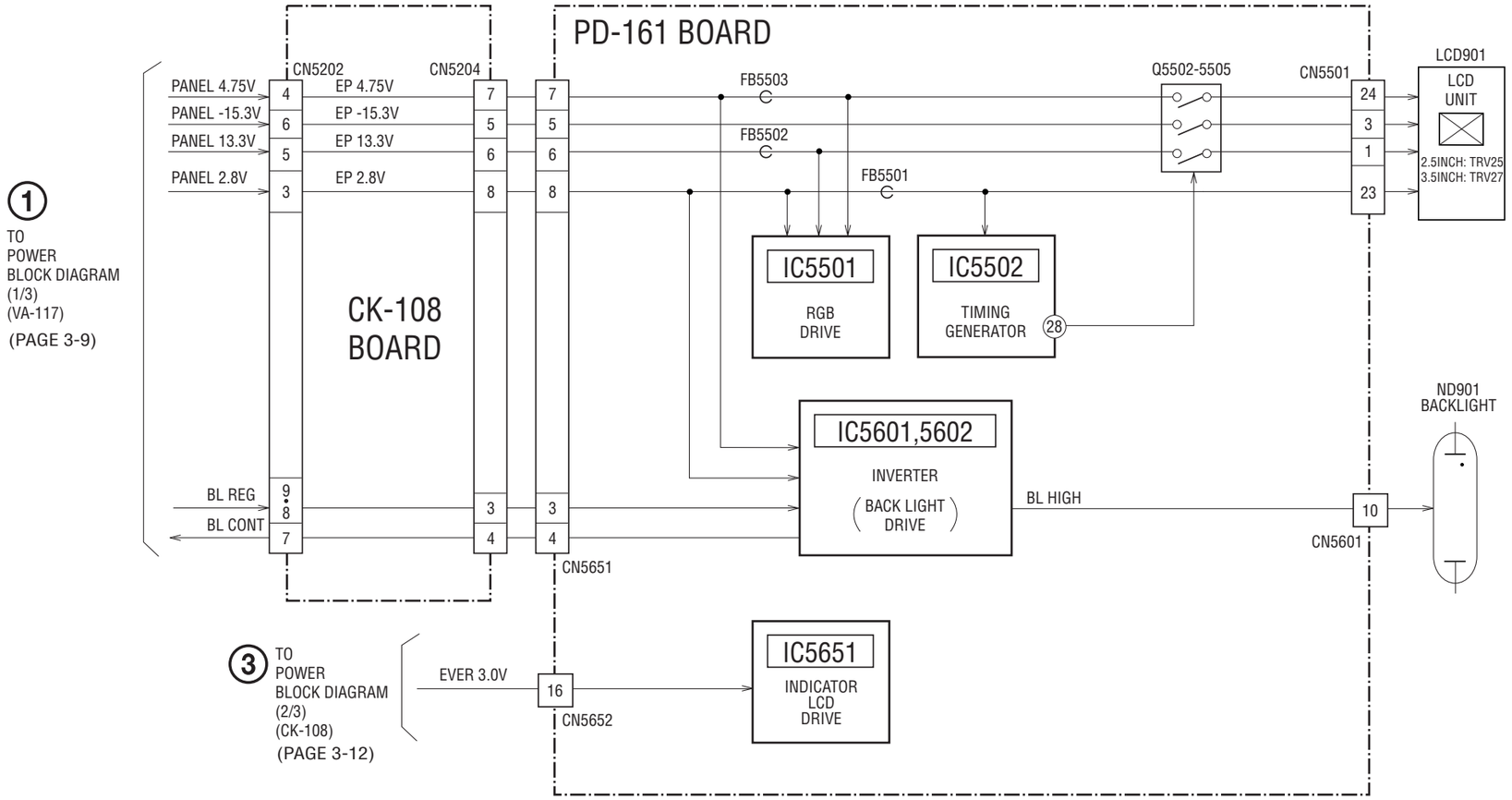
3-6. POWER BLOCK DIAGRAM (2/3)

( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.



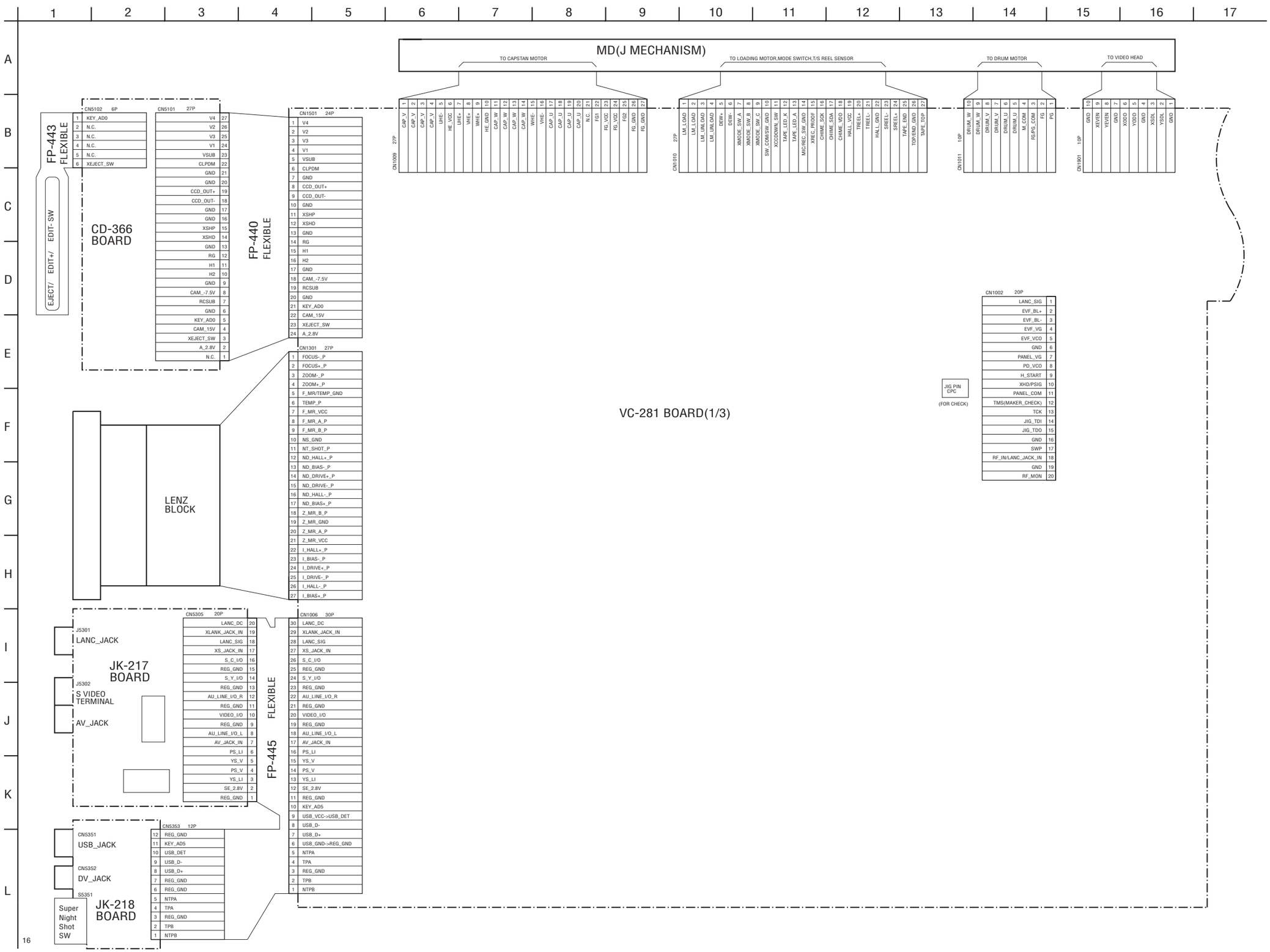
3-7. POWER BLOCK DIAGRAM (3/3)

( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.

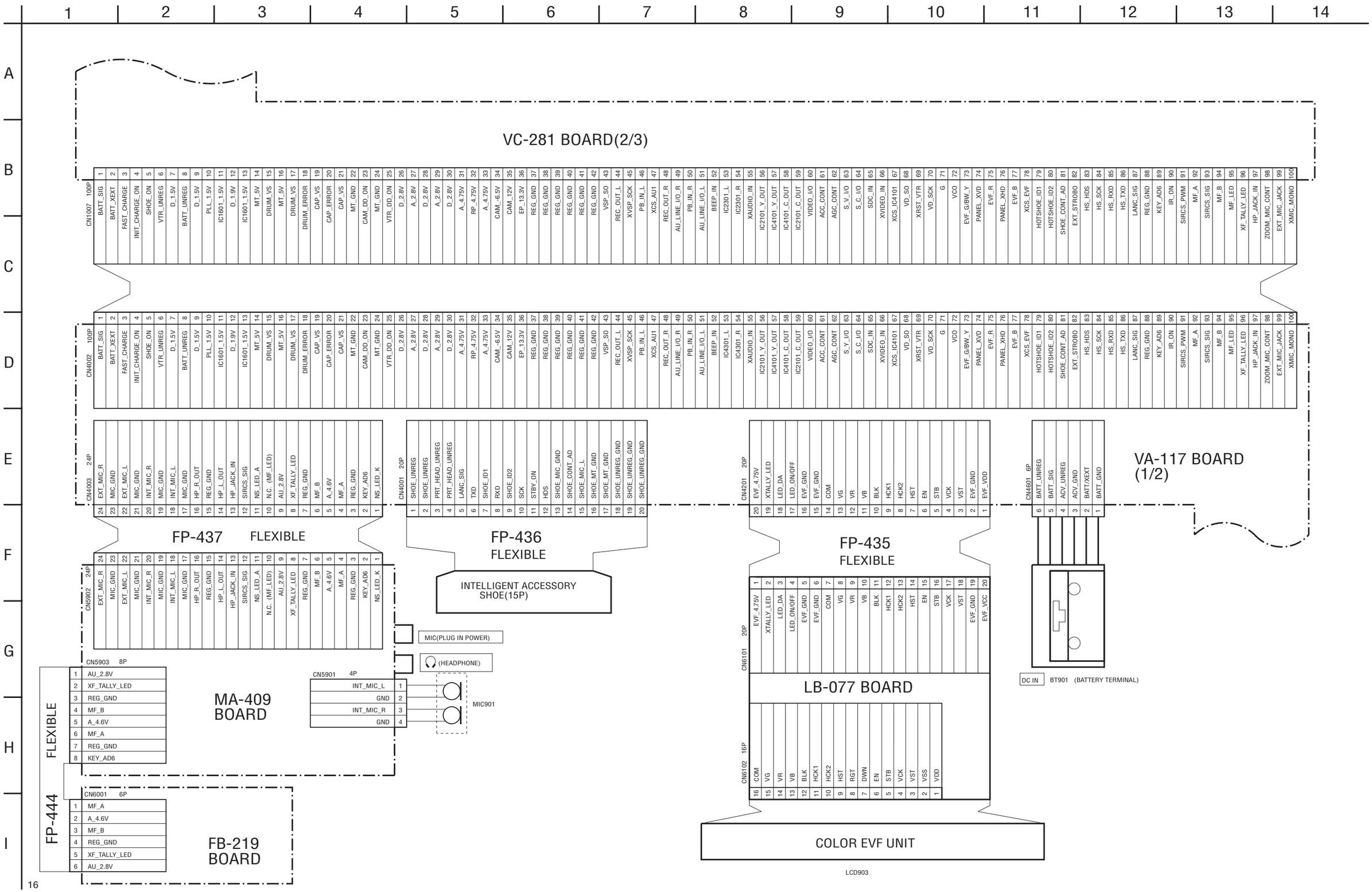


SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

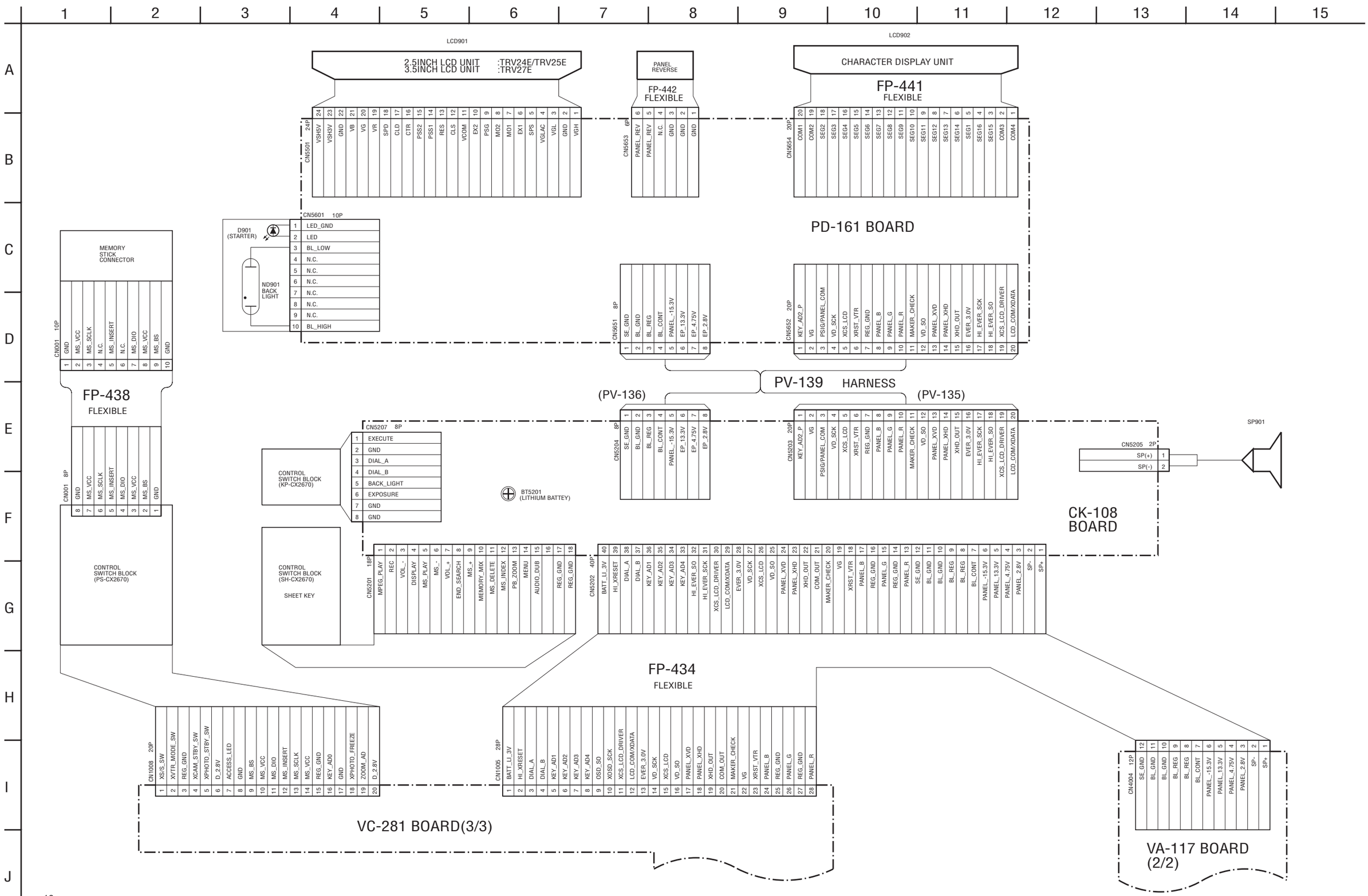
4-1. FRAME SCHEMATIC DIAGRAM (1/3)



FRAME SCHEMATIC DIAGRAM (2/3)


1 2 3 4 5 6 7 8 9 10 11 12 13 14
A B C D E F G H I
VC-281 BOARD(2/3)
CN1007 100P
CN4002 100P
BATT_SIG BATT_XEXT FAST_CHARGE INIT_CHARGE_ON SHOE_ON VTR_UNREG D_1.5V BATT_UNREG D_1.5V PLL_1.5V IC1601_1.5V D_1.9V IC1601_1.5V MT_5V DRUM_VS MT_5V DRUM_VS DRUM_ERROR CAP_VS CAP_ERROR CAP_VS MT_GND CAM_DD_ON MT_GND VTR_DD_ON D_2.8V A_2.8V D_2.8V A_2.8V D_2.8V A_4.75V RP_4.75V A_4.75V CAM_-6.5V CAM_12V EP_13.3V REG_GND REG_GND REG_GND REG_GND REG_GND REG_GND VSP_SO REC_OUT_L XVSP_SCK PB_IN_L XCS_AU1 REC_OUT_R AU_LINE_I/O_R PB_IN_R AU_LINE_I/O_L BEEP_IN IC2301_L IC2301_R XAUDIO_IN IC2101_Y_OUT IC4101_Y_OUT IC4101_C_OUT IC2101_C_OUT VIDEO_I/O ACC_CONT AGC_CONT S_V_I/O S_C_I/O SDC_IN XVIDEO_IN XCS_IC4101 VD_SO XRST_VTR VD_SCK G VCO EVF_G/BW_Y PANEL_XVD EVF_R PANEL_XHD EVF_B XCS_EVF HOTSHOE_ID1 HOTSHOE_ID2 SHOE_CONT_AD EXT_STROBO HS_HDS HS_SCK HS_RXD HS_TXD LANC_SIG REG_GND KEY_AD6 IR_ON SIRCS_PWM MF_A SIRCS_SIG MF_B MF_LED XF_TALLY_LED HP_JACK_IN ZOOM_MIC_CONT EXT_MIC_JACK XMIC_MONO
CN4003 24P
EXT_MIC_R MIC_GND EXT_MIC_L MIC_GND INT_MIC_R MIC_GND INT_MIC_L MIC_GND HP_R_OUT REG_GND HP_L_OUT HP_JACK_IN SIRCS_SIG NS_LED_A N.C. (MF_LED) AU_2.8V XF_TALLY_LED REG_GND MF_B A_4.6V MF_A REG_GND KEY_AD6 NS_LED_K
FP-437 FLEXIBLE
CN5902 24P
EXT_MIC_R MIC_GND EXT_MIC_L MIC_GND INT_MIC_R MIC_GND INT_MIC_L MIC_GND HP_R_OUT REG_GND HP_L_OUT HP_JACK_IN SIRCS_SIG NS_LED_A N.C. (MF_LED) AU_2.8V XF_TALLY_LED REG_GND MF_B A_4.6V MF_A REG_GND KEY_AD6 NS_LED_K
CN4001 20P
SHOE_UNREG SHOE_UNREG PRT_HEAD_UNREG PRT_HEAD_UNREG LANC_SIG TXD SHOE_ID1 RXD SHOE_ID2 SCK STBY_ON HDS SHOE_MIC_GND SHOE_CONT_AD SHOE_MIC_L SHOE_MT_GND SHOE_MT_GND SHOE_UNREG_GND SHOE_UNREG_GND SHOE_UNREG_GND
FP-436 FLEXIBLE
INTELLIGENT ACCESSORY SHOE(15P)
CN4201 20P
EVF_4.75V XTALLY_LED LED_DA LED_ON/OFF EVF_GND EVF_GND COM VG VR VB BLK HCK1 HCK2 HST EN STB VCK VST EVF_GND EVF_VDD
FP-435 FLEXIBLE
CN6101 20P
EVF_4.75V XTALLY_LED LED_DA LED_ON/OFF EVF_GND EVF_GND COM VG VR VB BLK HCK1 HCK2 HST EN STB VCK VST EVF_GND EVF_VCC
LB-077 BOARD
CN6102 16P
COM VG VR VB BLK HCK1 HCK2 HST RGT DWN EN STB VCK VST VSS VDD
COLOR EVF UNIT
LCD903
CN4601 6P
BATT_UNREG BATT_SIG ACV_UNREG ACV_GND BATT/XEXT BATT_GND
VA-117 BOARD (1/2)
DC IN BT901 (BATTERY TERMINAL)
MIC(PLUG IN POWER)
(HEADPHONE)
CN5901 4P
INT_MIC_L GND INT_MIC_R GND
MIC901
CN5903 8P
1 AU_2.8V
2 XF_TALLY_LED
3 REG_GND
4 MF_B
5 A_4.6V
6 MF_A
7 REG_GND
8 KEY_AD6
FLEXIBLE
MA-409 BOARD
FP-444
CN6001 6P
1 MF_A
2 A_4.6V
3 MF_B
4 REG_GND
5 XF_TALLY_LED
6 AU_2.8V
FB-219 BOARD

FRAME SCHEMATIC DIAGRAM (3/3)


LCD901
2.5INCH LCD UNIT :TRV24E/TRV25E
3.5INCH LCD UNIT :TRV27E
CN5501 24P
VSH5V VSH3V GND VB VG VR SPD CLD CTR PSS2 PSS1 RES CLS VCOM EX2 PSG MO2 MO1 EX1 SPS VGLAC VGL GND VGH
PANEL REVERSE
FP-442 FLEXIBLE
CN5653 6P
PANEL_REV PANEL_REV N.C. GND GND GND
LCD902
CHARACTER DISPLAY UNIT
FP-441 FLEXIBLE
CN5654 20P
COM1 COM2 SEG2 SEG3 SEG4 SEG5 SEG6 SEG7 SEG8 SEG9 SEG10 SEG11 SEG12 SEG13 SEG14 SEG1 SEG16 SEG15 COM3 COM4
CN5601 10P
D901 (STARTER)
ND901 BACK LIGHT
LED_GND
LED
BL_LOW
N.C.
N.C.
N.C.
N.C.
N.C.
BL_HIGH
PD-161 BOARD
MEMORY STICK CONNECTOR
CN001 10P
GND MS_VCC MS_SCLK N.C. MS_INSERT N.C. MS_DIO MS_VCC MS_BS GND
FP-438 FLEXIBLE
CN5651 8P
SE_GND BL_GND BL_REG BL_CONT PANEL_-15.3V EP_13.3V EP_4.75V EP_2.8V
CN5652 20P
KEY_AD2_P VG PSIG/PANEL_COM VD_SCK XCS_LCD XRST_VTR REG_GND PANEL_B PANEL_G PANEL_R MAKER_CHECK VD_SO PANEL_XVD PANEL_XHD XHD_OUT EVER_3.0V HI_EVER_SCK HI_EVER_SO XCS_LCD_DRIVER LCD_COM/XDATA
PV-139 HARNESS
(PV-136)
(PV-135)
CN5204 8P
SE_GND BL_GND BL_REG BL_CONT PANEL_-15.3V EP_13.3V EP_4.75V EP_2.8V
CN5203 20P
KEY_AD2_P VG PSIG/PANEL_COM VD_SCK XCS_LCD XRST_VTR REG_GND PANEL_B PANEL_G PANEL_R MAKER_CHECK VD_SO PANEL_XVD PANEL_XHD XHD_OUT EVER_3.0V HI_EVER_SCK HI_EVER_SO XCS_LCD_DRIVER LCD_COM/XDATA
SP901
CN5205 2P
SP(+) SP(-)
CK-108 BOARD
CN001 8P
GND MS_VCC MS_SCLK MS_INSERT MS_DIO MS_VCC MS_BS GND
CONTROL SWITCH BLOCK (KP-CX2670)
CN5207 8P
EXECUTE GND DIAL_A DIAL_B BACK_LIGHT EXPOSURE GND GND
BT5201 (LITHIUM BATTEY)
CONTROL SWITCH BLOCK (PS-CX2670)
CONTROL SWITCH BLOCK (SH-CX2670)
SHEET KEY
CN6201 18P
MPEG_PLAY REC VOL_- DISPLAY MS_PLAY MS_- VOL_+ END_SEARCH MS_+ MEMORY_MIX MS_DELETE MS_INDEX PB_ZOOM MENU AUDIO_DUB REG_GND REG_GND
CN5202 40P
BATT_LI_3V HI_XRESET DIAL_A DIAL_B KEY_AD1 KEY_AD2 KEY_AD3 KEY_AD4 HI_EVER_SO HI_EVER_SCK XCS_LCD_DRIVER LCD_COM/XDATA EVER_3.0V VD_SCK XCS_LCD VD_SO PANEL_XVD PANEL_XHD XHD_OUT COM_OUT MAKER_CHECK VG XRST_VTR PANEL_B REG_GND PANEL_G REG_GND PANEL_R SE_GND BL_GND BL_GND BL_REG BL_REG BL_CONT PANEL_-15.3V PANEL_13.3V PANEL_4.75V PANEL_2.8V SP- SP+
FP-434 FLEXIBLE
CN1008 20P
XS/S_SW XVTR_MODE_SW REG_GND XCAM_STBY_SW XPHOTO_STBY_SW D_2.8V ACCESS_LED GND MS_BS MS_VCC MS_DIO MS_INSERT MS_SCLK MS_VCC REG_GND KEY_AD0 GND XPHOTO_FREEZE ZOOM_AD D_2.8V
CN1005 28P
BATT_LI_3V HI_XRESET DIAL_A DIAL_B KEY_AD1 KEY_AD2 KEY_AD3 KEY_AD4 OSD_SO XOSD_SCK XCS_LCD_DRIVER LCD_COM/XDATA EVER_3.0V VD_SCK XCS_LCD VD_SO PANEL_XVD PANEL_XHD XHD_OUT COM_OUT MAKER_CHECK VG XRST_VTR PANEL_B REG_GND PANEL_G REG_GND PANEL_R
VC-281 BOARD(3/3)
CN4004 12P
SE_GND BL_GND BL_GND BL_REG BL_REG BL_CONT PANEL_-15.3V PANEL_13.3V PANEL_4.75V PANEL_2.8V SP- SP+
VA-117 BOARD (2/2)

16

COVER

4-2. SCHEMATIC DIAGRAMS

Link

- CD-366 BOARD (CCD IMAGER)
- LB-077 BOARD (EVF, EVF BACK LIGHT)
- MA-409 BOARD (MIC IN, HP JACK, REMOTE CONTROL RECEIVER, SWITCH)
- FB-219 BOARD (MANUAL FOCUS SENSOR)
- JK-217 BOARD (STEADY SHOT, A/D IN/OUT)
- JK-218 BOARD (DIGITAL IN/OUT)
- CK-108 BOARD (SWITCH, CONNECTOR)
- CONTROL SWITCH BLOCK (PS-CX2670)
- PD-161 BOARD (1/2) (RGB DRIVE, TIMING GENERATOR)
- PD-161 BOARD (2/2) (LCD DRIVE, BACK LIGHT)
- VA-117 BOARD (1/6) (RGB DRIVE, TG)
- VA-117 BOARD (2/6) (AUDIO)
- VA-117 BOARD (3/6) (MIC AMP)
- VA-117 BOARD (4/6) (DC-DC CONVERTER)
- VA-117 BOARD (5/6) (CHARGE)
- VA-117 BOARD (6/6) (VIDEO I/O)
- FP-100, FP-228, FP-102 FLEXIBLE BOARD (MODE SWITCH, DEW SENSOR, TAPE TOP/END SENSOR, S/T REEL)

- COMMON NOTE FOR SCHEMATIC DIAGRAMS
- WAVEFORMS

COVER

4-2. SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR SCHEMATIC DIAGRAMS
(In addition to this, the necessary note is printed in each block)

(For schematic diagrams)

- All capacitors are in μF unless otherwise noted. pF : μμF. 50 V or less are not indicated except for electrolytics and tantalums.
- Chip resistors are 1/10 W unless otherwise noted. kΩ=1000 Ω, MΩ=1000 kΩ.
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, Because it is damaged by the heat.
- Some chip part will be indicated as follows.

Example

C541	L452
22U	10UH
TA A	2520

Kinds of capacitor
Temperature characteristics
External dimensions (mm)

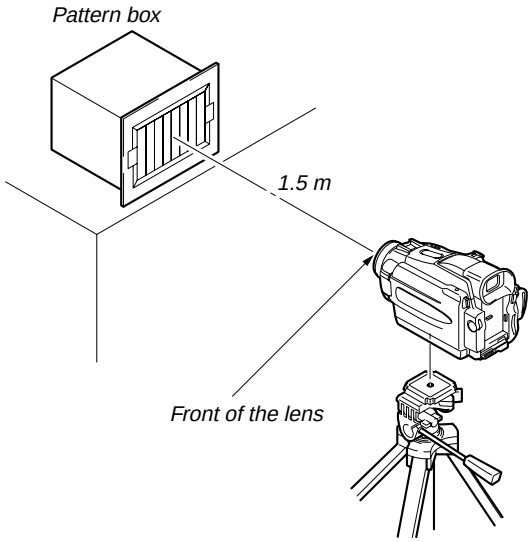
- Constants of resistors, capacitors, ICs and etc with XX indicate that they are not used.
  In such cases, the unused circuits may be indicated.
- Parts with ★ differ according to the model/destination.
  Refer to the mount table for each function.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- Signal name
  XEDIT → $\overline{\text{EDIT}}$ PB/XREC → PB/$\overline{\text{REC}}$
- : non flammable resistor
- : fusible resistor
- : panel designation
- : B+ Line
- : B– Line
- : IN/OUT direction of (+,–) B LINE.
- : adjustment for repair.
- : VIDEO SIGNAL (ANALOG)
- : AUDIO SIGNAL (ANALOG)
- : VIDEO/AUDIO SIGNAL
- : VIDEO/AUDIO/SERVO SIGNAL
- : SERVO SIGNAL
- Circled numbers refer to waveforms.

(Measuring conditions voltage and waveform)

- Voltages and waveforms are measured between the measurement points and ground when camera shoots color bar chart of pattern box. They are reference values and reference waveforms.
  (VOM of DC 10 MΩ input impedance is used)
- Voltage values change depending upon input impedance of VOM used.)

Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

1. Connection



2. Adjust the distance so that the output waveform of Fig. a and the Fig. b can be obtain.

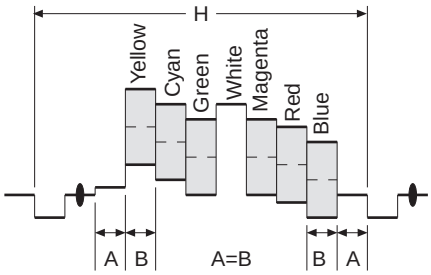


Fig. a (Video output terminal output waveform)

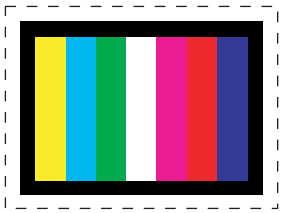
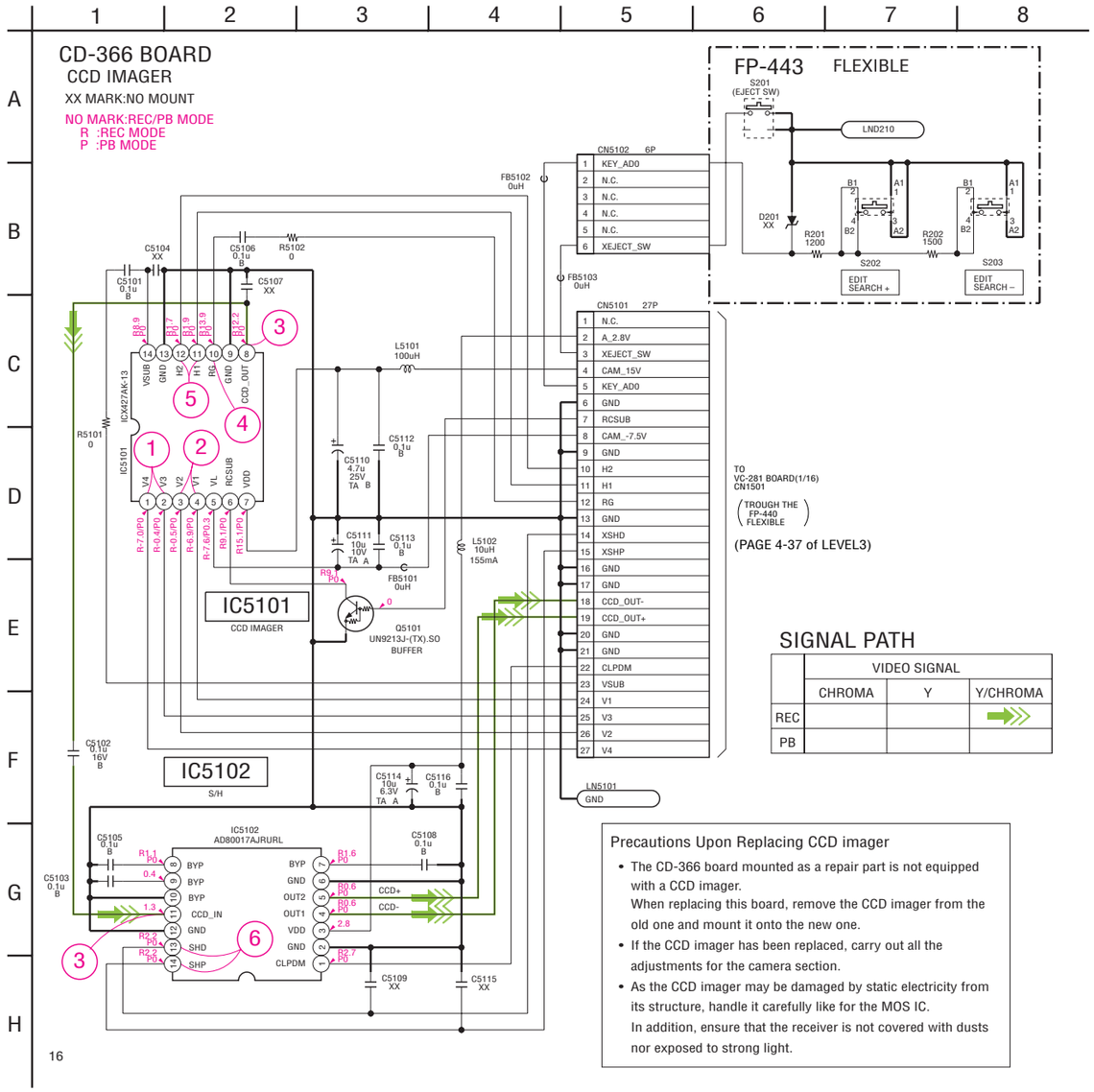


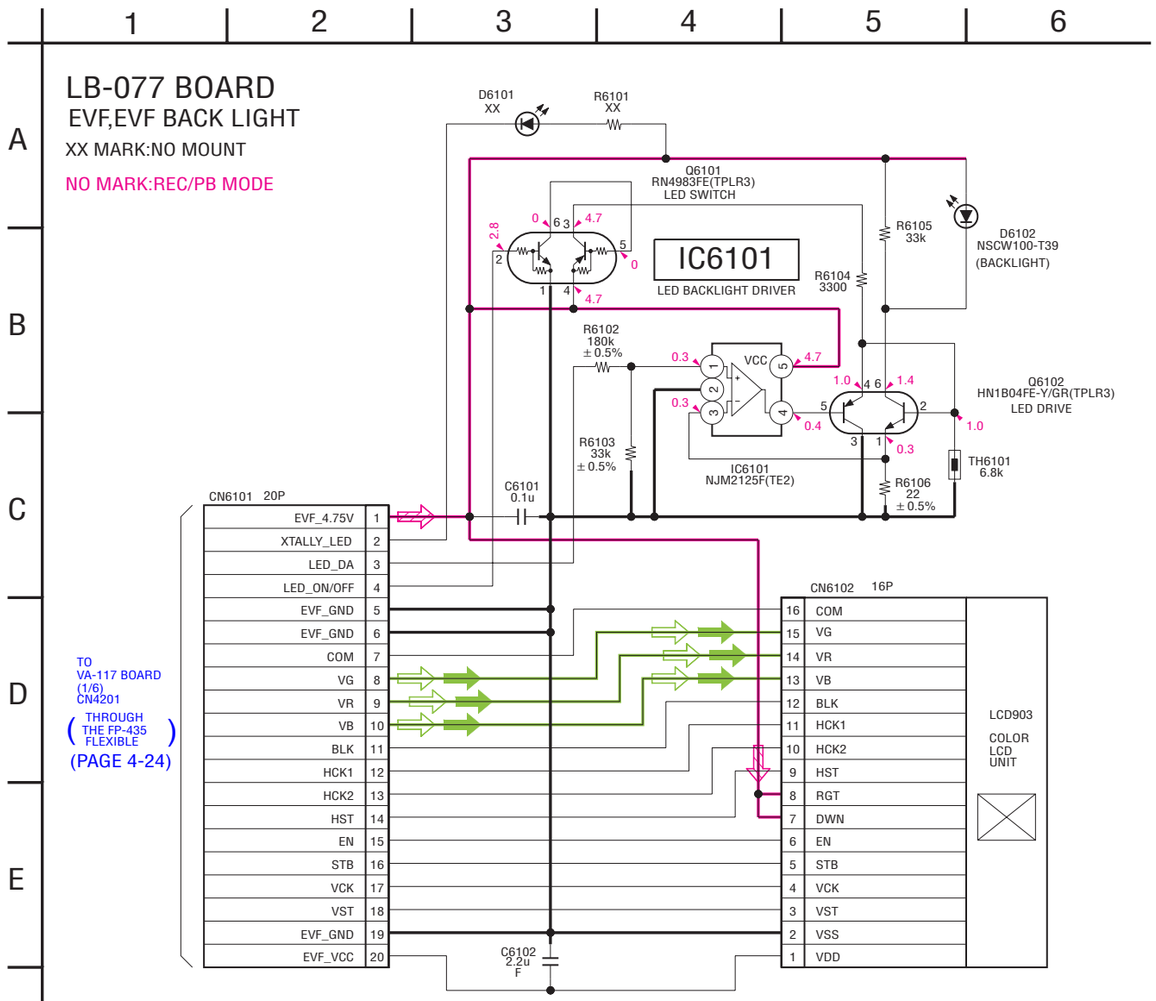
Fig.b (Picture on monitor TV)

When indicating parts by reference number, please include the board name.

4-2. SCHEMATIC DIAGRAMS

For Schematic Diagram
- Refer to page 4-71 for printed wiring board.
- Refer to page 4-93 for waveforms.





For Schematic Diagram

- Refer to page 4-75 for printed wiring board of MA-409 board.
- Refer to page 4-77 for printed wiring board of FB-219 board.

MA-409 BOARD

MIC IN,HP JACK,REMOTE CONTROL RECEIVER,SWITCH

XX MARK:NO MOUNT

NO MARK:REC/PB MODE

MIC901 (L, R)

CN5901 4P
1 INT_MIC_L
2 GND
3 INT_MIC_R
4 GND

J5901 MIC (PLUG IN POWER)

VD5902 VD5904

FB5903 0uH EXT_MIC_L

FB5904 0uH EXT_MIC_R

C5901 0.01u B

LN5901 A

J5902 (HEADPHONES)

FB5901 0uH HP_R_OUT

FB5902 0uH HP_L_OUT

VD5901 VD5903

HP_JACK_IN

IC5901 SBX3055-01

4.6 4.6

4 OUT
3 VCC
2 GND GND
1

R5901 47

C5902 10u 6.3V TA

D5903 MA111-(K8).S0

IC5901
REMOTE CONTROL RECEIVER

D5901 CL-310IRS-X-TU (NS LED)

D5902 CL-310IRS-X-TU (NS LED)

D5904 XX

KEY_AD6

MF_A

MF_B

XF_TALLY_LED

D5905 UDZSTE-178.2B

CN5902 24P

1	NS_LED_K
2	KEY_AD6
3	REG_GND
4	MF_A
5	A_4.6V
6	MF_B
7	REG_GND
8	XF_TALLY_LED
9	AU_2.8V
10	N.C. (MF_LED)
11	NS_LED_A
12	SIRCS_SIG
13	HP_JACK_IN
14	HP_L_OUT
15	REG_GND
16	HP_R_OUT
17	MIC_GND
18	INT_MIC_L
19	MIC_GND
20	INT_MIC_R
21	MIC_GND
22	EXT_MIC_L
23	MIC_GND
24	EXT_MIC_R

TO VA-117 BOARD(3/6) CN4003 (THROUGH THE FP-437 FLEXIBLE) (PAGE 4-27)

FP-444 FLEXIBLE

CN5903 8P

1	AU_2.8V
2	XF_TALLY_LED
3	REG_GND
4	MF_B
5	A_4.6V
6	MF_A
7	REG_GND
8	KEY_AD6

S301 FADER

S302 FOCUS (INFINITY)

R301 1200

R302 1500

B1 2 A1 1 4 B2 3 A2

2 4 1 3

FB-219 BOARD

MANUAL FOCUS SENSOR

CN6001 6P

1	MF_A
2	A_4.6V
3	MF_B
4	REG_GND
5	XF_TALLY_LED
6	AU_2.8V

R6003 330

PH6001 GP1S092HCPI 2.3 0.1

PH6002 GP1S092HCPI 1.1 0.1

R6001 0

R6002 680

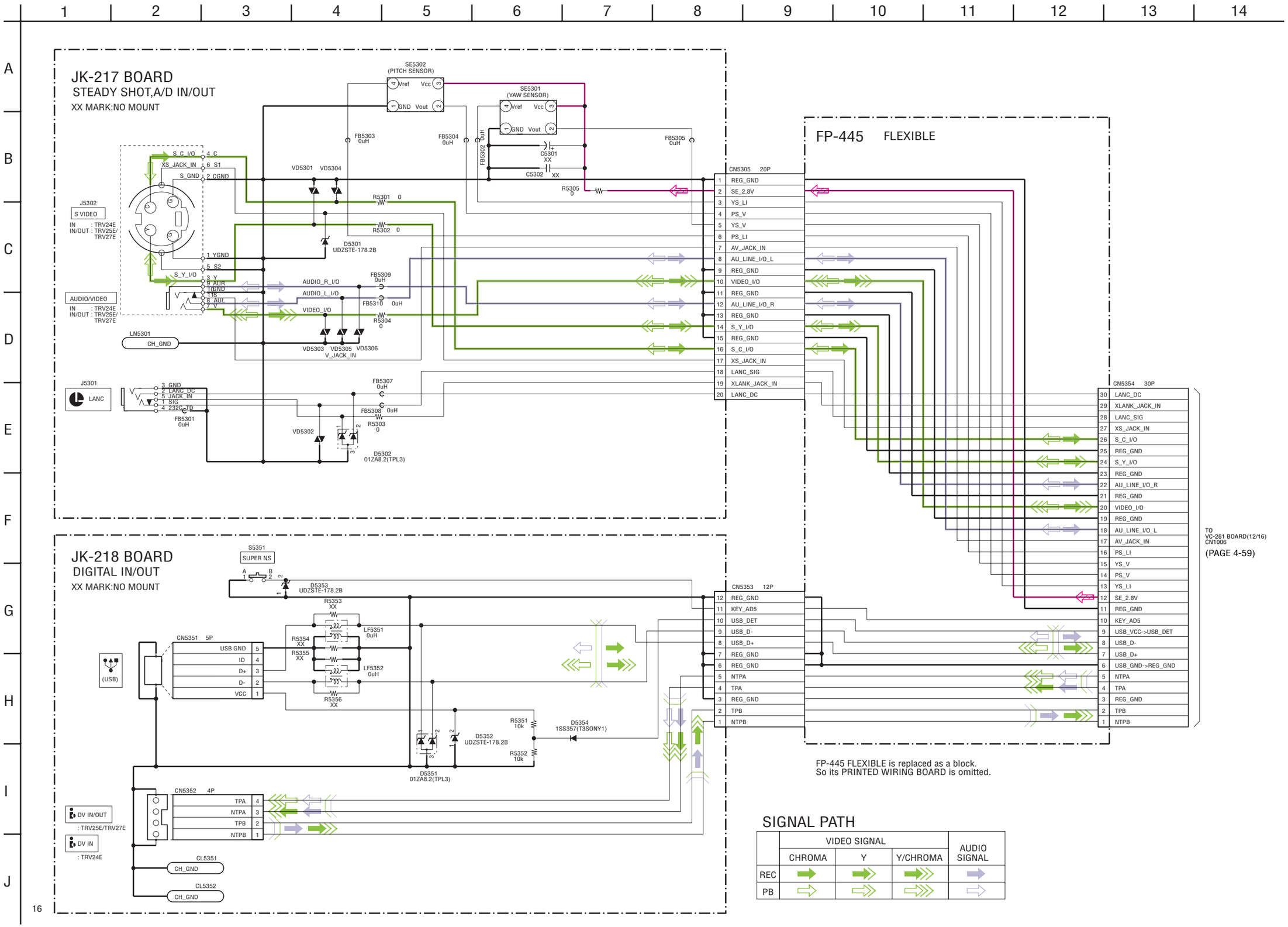
D6001 SML-310LTT86 (TALLY)

SIGNAL PATH

	AUDIO SIGNAL
REC	➡
PB	⇨

For Schematic Diagram

• Refer to page 4-73 for printed wiring board of JK-217 board.
• Refer to page 4-74 for printed wiring board of JK-218 board.



FP-445 FLEXIBLE is replaced as a block.
So its PRINTED WIRING BOARD is omitted.

SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	→	→	→	→
PB	⇨	⇨	⇨	⇨

For Schematic Diagram

• Refer to page 4-81 for printed wiring board.

CONTROL SWITCH BLOCK (SH-CX2670)

S106 REC
S105 VOLUME –
S104 DISPLAY
S103 MEMORY –
S102 MEMORY PLAY
S101 MPEG
S111 REC
(TRV25E/TRV27E)
S110 VOLUME +
S109 END SEARCH
S108 MEMORY+
S107 INDEX
S116 AUDIO DUB
S115 MENU
S114 PLAY ZOOM
S113 MEMORY MIX
S112 MEMORY DELETE

CONTROL SWITCH BLOCK(SH-CX2670)is replaced as a block.
So that this PRINTED WIRING BOARD is omitted.

CK-108 BOARD
SWITCH,CONNECTOR
XX MARK:NO MOUNT

CN5201 18P

MPEG_PLAY	1	(MPEG_PLAY)	KEY_AD1
REC	2	(REC)	KEY_AD3
VOL_-	3		VOL_-
DISPLAY	4		DISPLAY
MS_PLAY	5		MS_PLAY
MS_-	6		MS_-
VOL_+	7		VOL_+
END_SEARCH	8		END_SEARCH
MS_+	9		MS_+
MEMORY_MIX	10		MEMORY_MIX
MS_DELETE	11		MS_DELETE
MS_INDEX	12		MS_INDEX
PB_ZOOM	13	(PB_ZOOM)	KEY_AD2
MENU	14		MENU
AUDIO_DUB	15		AUDIO_DUB
	16		
REG_GND	17		
REG_GND	18		

KEY_AD1: R5206 1200, R5210 1500, R5214 2200, R5218 3900, R5224 8200, R5225 27k
MS_-
MS_+
MEMORY_MIX
MS_DELETE
MS_INDEX
MS_PLAY
(MPEG_PLAY) KEY_AD1

KEY_AD2: R5207 1200, R5211 1500, R5215 2200
(BACK_LIGHT,EXPOSURE) KEY_AD2_A
AUDIO_DUB
MENU
(PB_ZOOM) KEY_AD2

KEY_AD3: R5208 1200, R5212 1500, R5216 2200, R5222 3900, R5221 8200
S5207 (PANEL OPEN/CLOSE)
VOL_-
DISPLAY
END_SEARCH
VOL_+
(REC) KEY_AD3

KEY_AD4: R5209 1200, R5213 1500, R5217 2200, R5220 3900, R5223 8200
(EXECUTE) KEY_AD4_A

S5201 STOP ■
S5202 REW◀◀
S5204 PLAY ▶
S5205 FF ▶▶
S5206 PAUSE ❚❚

HI_XRESET
R5201 1k
D5201 01ZA8.2(TPL3)
D5203 UDZSFE-178.2B
D5204 01ZA8.2(TPL3)
S5203 RESET

LN5201
CH GND

BT5201 (LITHIUM BATTERY) (SECONDARY)
C5202 XX
C5201 XX
D5208 XX
D5207 XX

FP-434 FLEXIBLE

CN002 28P

BATT_LI_3V	1	40	BATT_LI_3V	40	BATT_LI_3V
HI_XRESET	2	39	HI_XRESET	39	HI_XRESET
DIAL_A	3	38	DIAL_A	38	DIAL_A
DIAL_B	4	37	DIAL_B	37	DIAL_B
KEY_AD1	5	36	KEY_AD1	36	KEY_AD1
KEY_AD2	6	35	KEY_AD2	35	KEY_AD2
KEY_AD3	7	34	KEY_AD3	34	KEY_AD3
KEY_AD4	8	33	KEY_AD4	33	KEY_AD4
OSD_SO	9	32	HI_EVER_SO	32	HI_EVER_SO
XOSD_SCK	10	31	HI_EVER_SCK	31	HI_EVER_SCK
XCS_LCD_DRIVER	11	30	XCS_LCD_DRIVER	30	XCS_LCD_DRIVER
LCD_COM/XDATA	12	29	LCD_COM/XDATA	29	LCD_COM/XDATA
EVER_3.0V	13	28	EVER_3.0V	28	EVER_3.0V
VD_SCK	14	27	VD_SCK	27	VD_SCK
XCS_LCD	15	26	XCS_LCD	26	XCS_LCD
VD_SO	16	25	VD_SO	25	VD_SO
PANEL_XVD	17	24	PANEL_XVD	24	PANEL_XVD
PANEL_XHD	18	23	PANEL_XHD	23	PANEL_XHD
XHD_OUT	19	22	XHD_OUT	22	XHD_OUT
COM_OUT	20	21	COM_OUT	21	COM_OUT
MAKER_CHECK	21	20	MAKER_CHECK	20	MAKER_CHECK
VG	22	19	VG	19	VG
XRST_VTR	23	18	XRST_VTR	18	XRST_VTR
PANEL_B	24	17	PANEL_B	17	PANEL_B
REG_GND	25	16	REG_GND	16	REG_GND
PANEL_G	26	15	PANEL_G	15	PANEL_G
REG_GND	27	14	REG_GND	14	REG_GND
PANEL_R	28	13	PANEL_R	13	PANEL_R
		12	SE_GND	12	
		11	BL_GND	11	
		10	BL_GND	10	
		9	BL_REG	9	
		8	BL_REG	8	
		7	BL_CONT	7	
		6	PANEL_-15.3V	6	
		5	PANEL_13.3V	5	
		4	PANEL_4.75V	4	
		3	PANEL_2.8V	3	
		2	SP-	2	
		1	SP+	1	

CN003 12P

SE_GND	12		
BL_GND	11		
BL_GND	10		
BL_REG	9		
BL_REG	8		
BL_CONT	7		
PANEL_-15.3V	6		
PANEL_13.3V	5		
PANEL_4.75V	4		
PANEL_2.8V	3		
SP-	2		
SP+	1		

HI_XRESET
DIAL_A
DIAL_B
KEY_AD1
KEY_AD2
KEY_AD3
KEY_AD4
HI_EVER_SO
HI_EVER_SCK
XCS_LCD_DRIVER
LCD_COM/XDATA
EVER_3.0V
VD_SCK
XCS_LCD
VD_SO
PANEL_XVD
PANEL_XHD
XHD_OUT
COM_OUT
MAKER_CHECK
VG
XRST_VTR
R5227 0
PANEL_B
C5203 XX
PANEL_G
PANEL_R

TO VC-281 BOARD (16/16) CN1005 (PAGE 4-68 of LEVEL3)
TO VA-117 BOARD (2/6) CN4004 (PAGE 4-25)

CN5205 2P

SP(+)	1	
SP(-)	2	

SP901 SPEAKER
D5205 01ZA8.2(TPL3)
LN5202 CH GND

SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡			➡
PB	⇨			⇨

CN5203 20P

KEY_AD2_P	1	VG	
VG	2	COM_OUT	
PSIG/PANEL_COM	3	VD_SCK	
VD_SCK	4	XCS_LCD	
XCS_LCD	5	XRST_VTR	
XRST_VTR	6		
REG_GND	7	PANEL_B	
PANEL_B	8	PANEL_G	
PANEL_G	9	PANEL_R	
PANEL_R	10	MAKER_CHECK	
MAKER_CHECK	11	VD_SO	
VD_SO	12	PANEL_XVD	
PANEL_XVD	13	PANEL_XHD	
PANEL_XHD	14	XHD_OUT	
XHD_OUT	15	EVER_3.0V	
EVER_3.0V	16	HI_EVER_SCK	
HI_EVER_SCK	17	HI_EVER_SO	
HI_EVER_SO	18	XCS_LCD_DRIVER	
XCS_LCD_DRIVER	19	LCD_COM/XDATA	
LCD_COM/XDATA	20		

R5228 0
TO PD-161 BOARD(1/2) CN5652 (THROUGH THE PV-135 HARNESS) (PAGE 4-19)

CN5204 8P

SE_GND	1		
BL_GND	2		
BL_REG	3		
BL_CONT	4		
PANEL_-15.3V	5		
EP_13.3V	6		
EP_4.75V	7		
EP_2.8V	8		

TO PD-161 BOARD(1/2) CN5651 (THROUGH THE PV-136 HARNESS) (PAGE 4-19)

R5226 8200
KEY_AD4_A (EXECUTE)
DIAL_A
DIAL_B
KEY_AD2_A (BACK_LIGHT,EXPOSURE)
R5219 3900
D5206 01ZA8.2(TPL3)

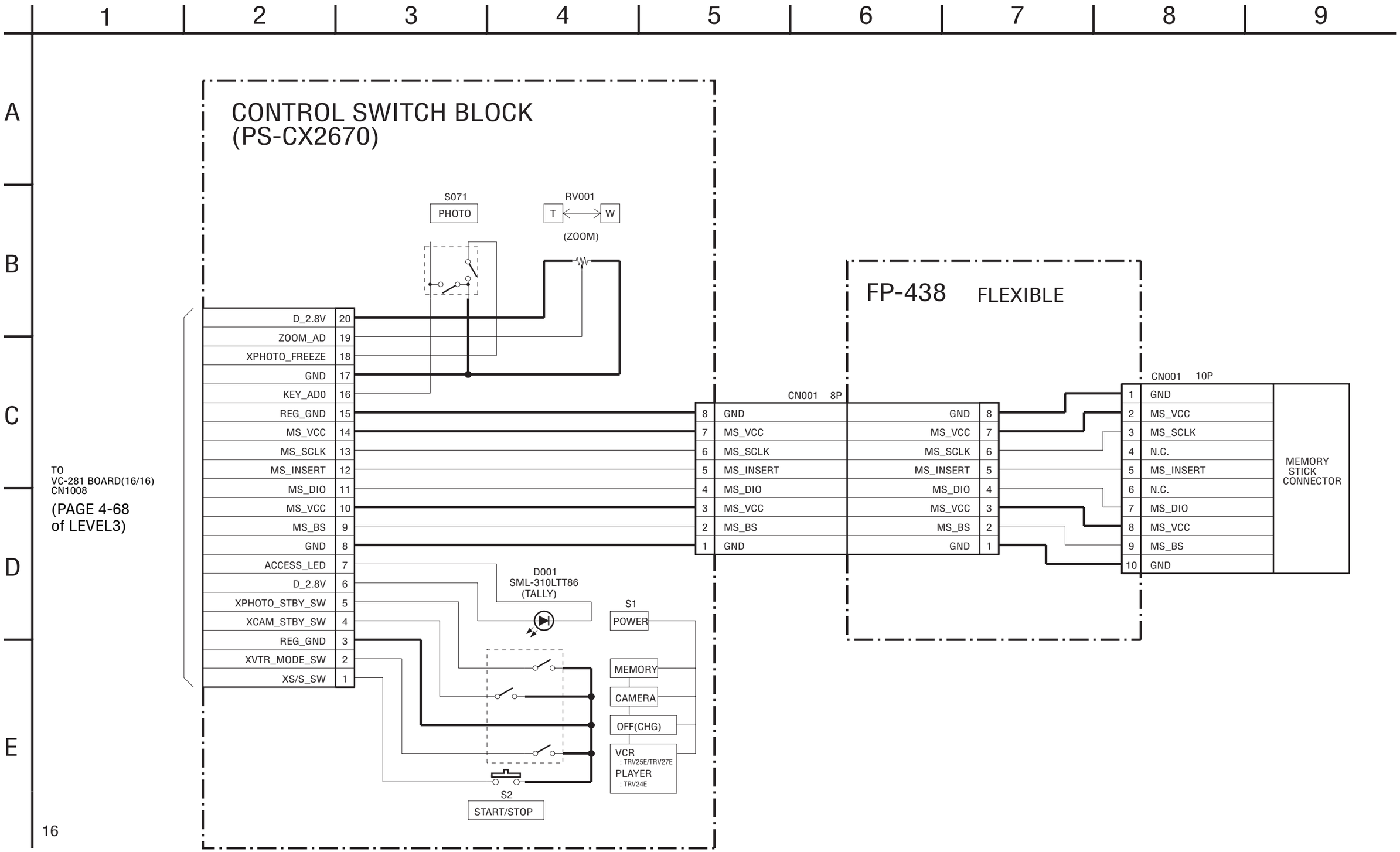
CN5207 8P

EXECUTE	1	EXECUTE	1
GND	2	GND	2
DIAL_A	3	DIAL_A	3
DIAL_B	4	DIAL_B	4
BACK_LIGHT	5	BACK_LIGHT	5
EXPOSURE	6	EXPOSURE	6
GND	7	GND	7
GND	8	GND	8

CONTROL SWITCH BLOCK (KP-CX2670)

S103
EXEC
S102
S102,103 SEL/PUSH EXEC
S100 EXPOSURE
S101 LIGHT
GND

CONTROL SWITCH BLOCK(KP-CX2670)is replaced as a block.
So that this PRINTED WIRING BOARD is omitted.



CONTROL SWITCH BLOCK(PS-CX2670),FP-438 FLEXIBLE are replaced as a block.
So that there PRINTED WIRING BOARD are omitted.

For Schematic Diagram

• Refer to page 4-77 for printed wiring board.
• Refer to page 4-93 for waveforms.

PD-161 BOARD(1/2)
RGB DRIVE,TIMING GENERATOR
XX MARK:NO MOUNT

NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE

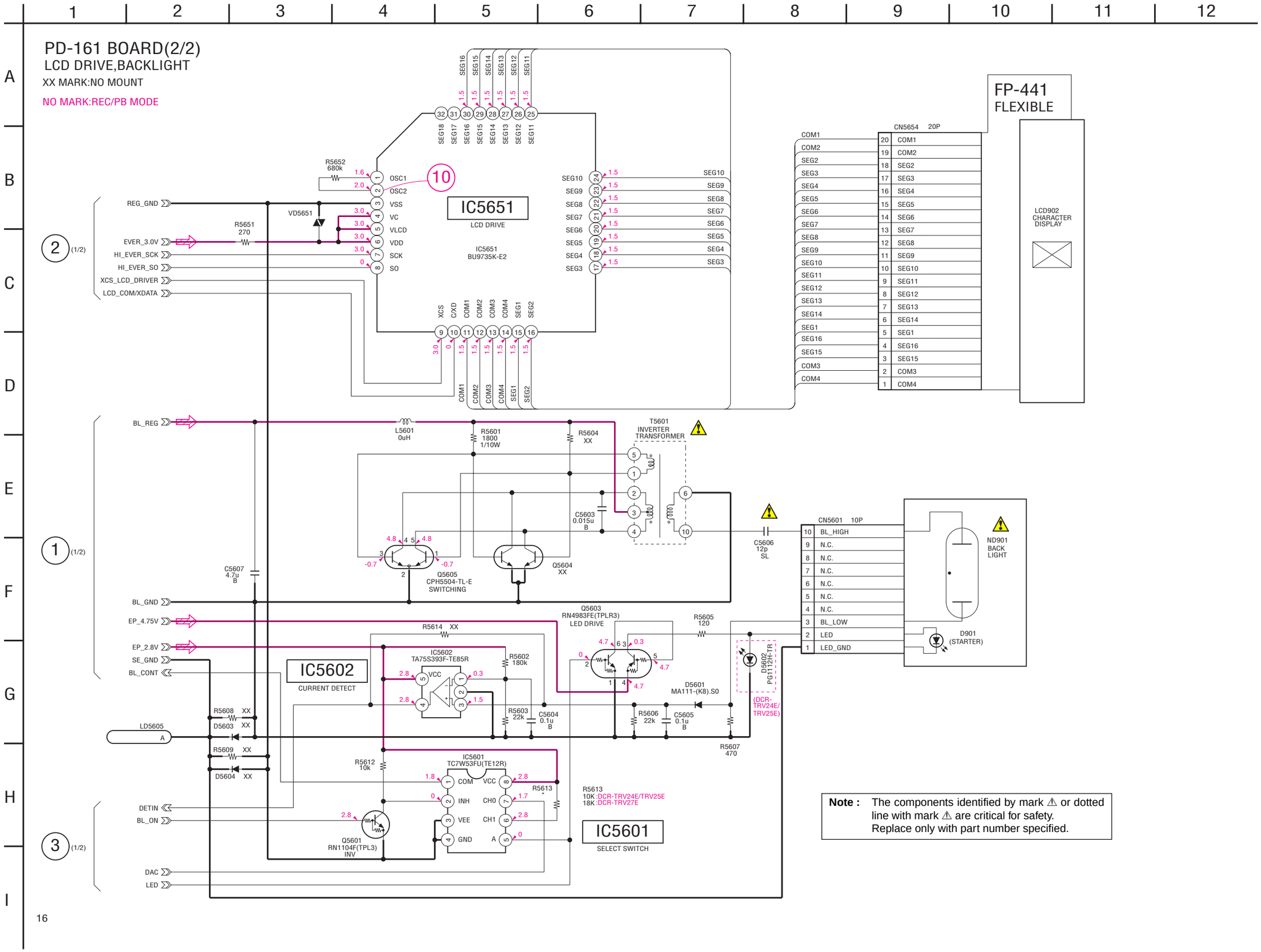
IC5501
RGB DRIVE
IC5501
CXA3592R-T4

IC5502
TIMING GENERATOR
IC5502
LZ9FF474

SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC	➡		
PB	⇨		

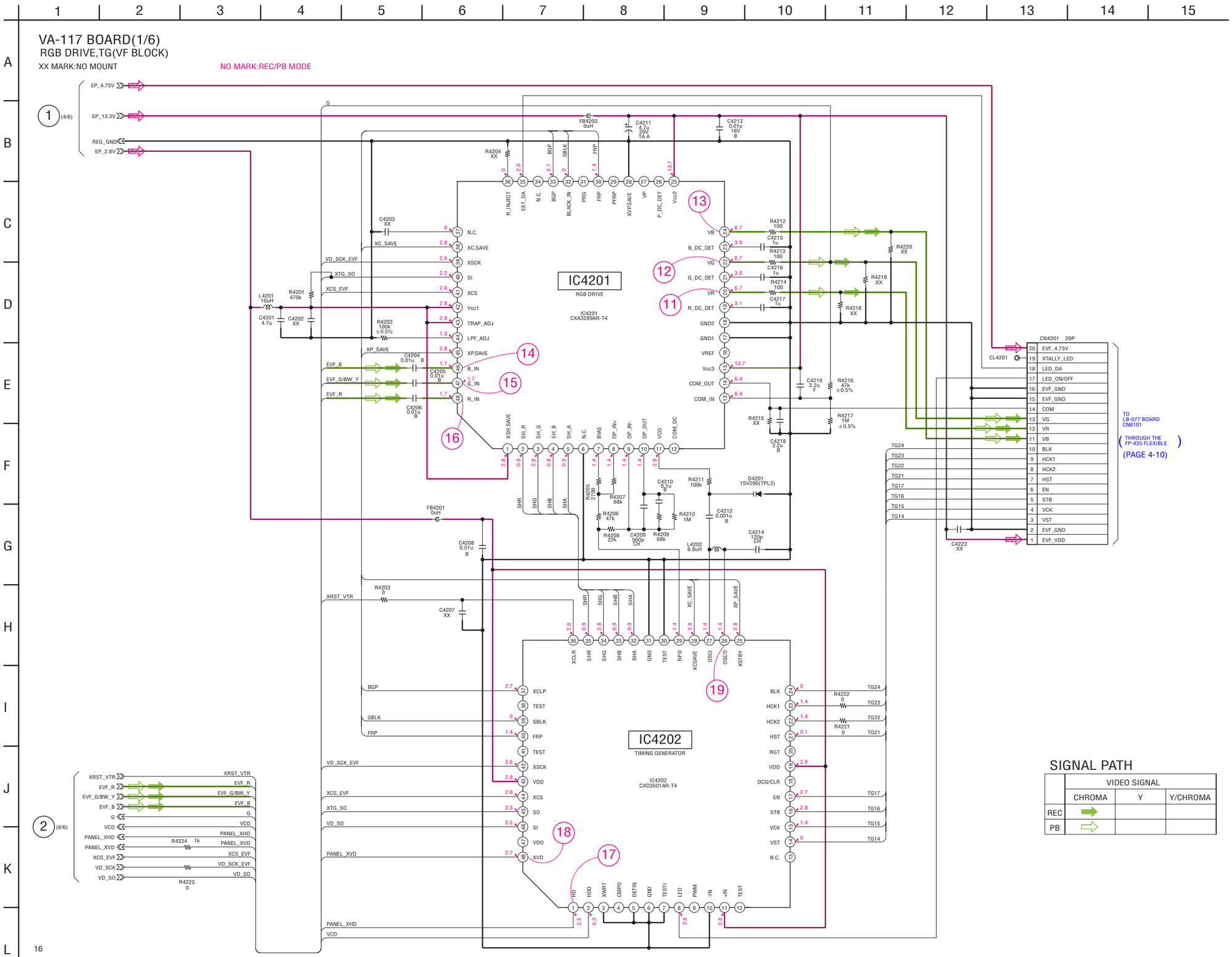
For Schematic Diagram
• Refer to page 4-77 for printed wiring board.
• Refer to page 4-93 for waveforms.



Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

For Schematic Diagram

• Refer to page 4-85 for printed wiring board.
• Refer to page 4-94, 95 for waveforms.



For Schematic Diagram

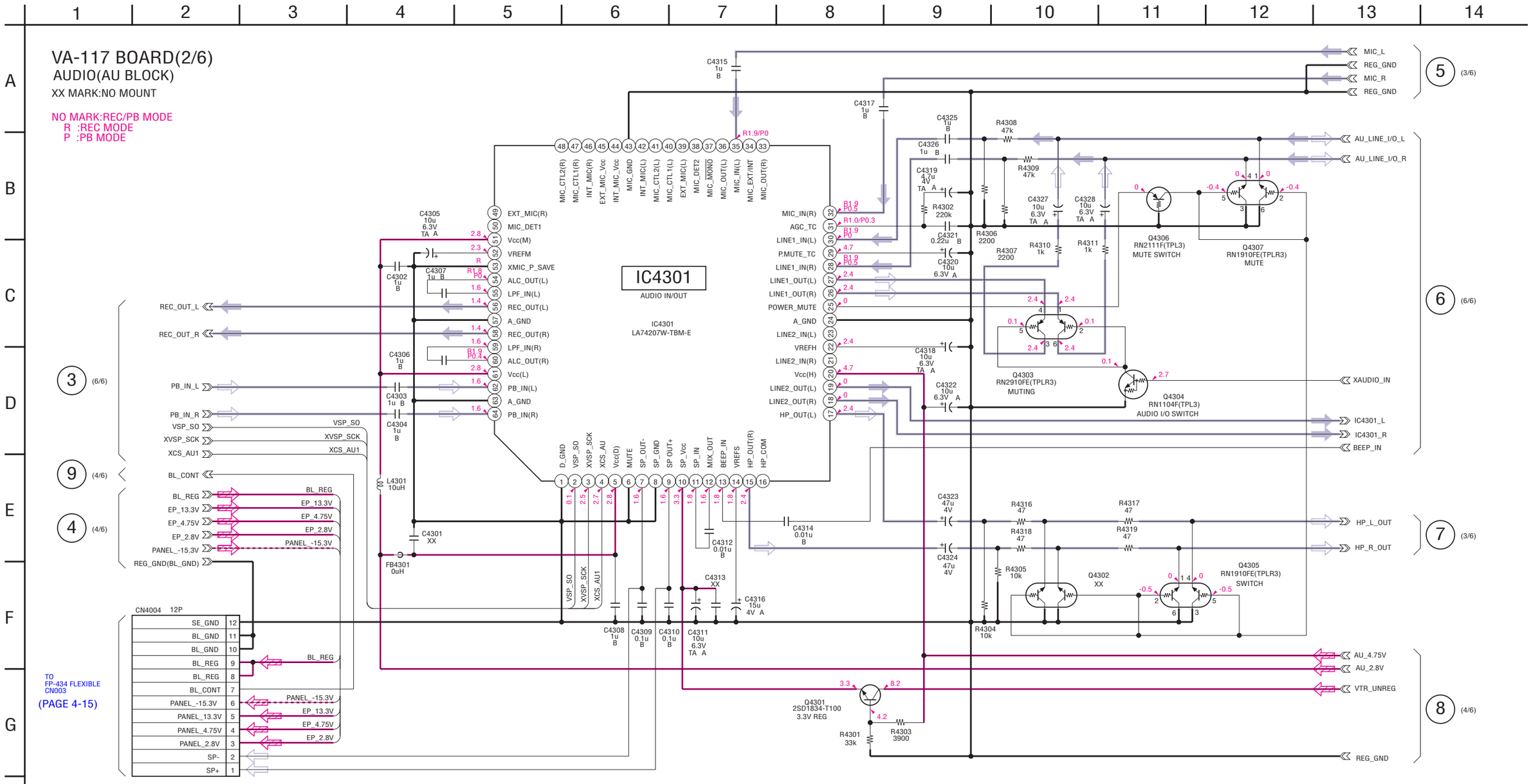
• Refer to page 4-85 for printed wiring board.

VA-117 BOARD(2/6)

AUDIO(AU BLOCK)

XX MARK:NO MOUNT

NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE

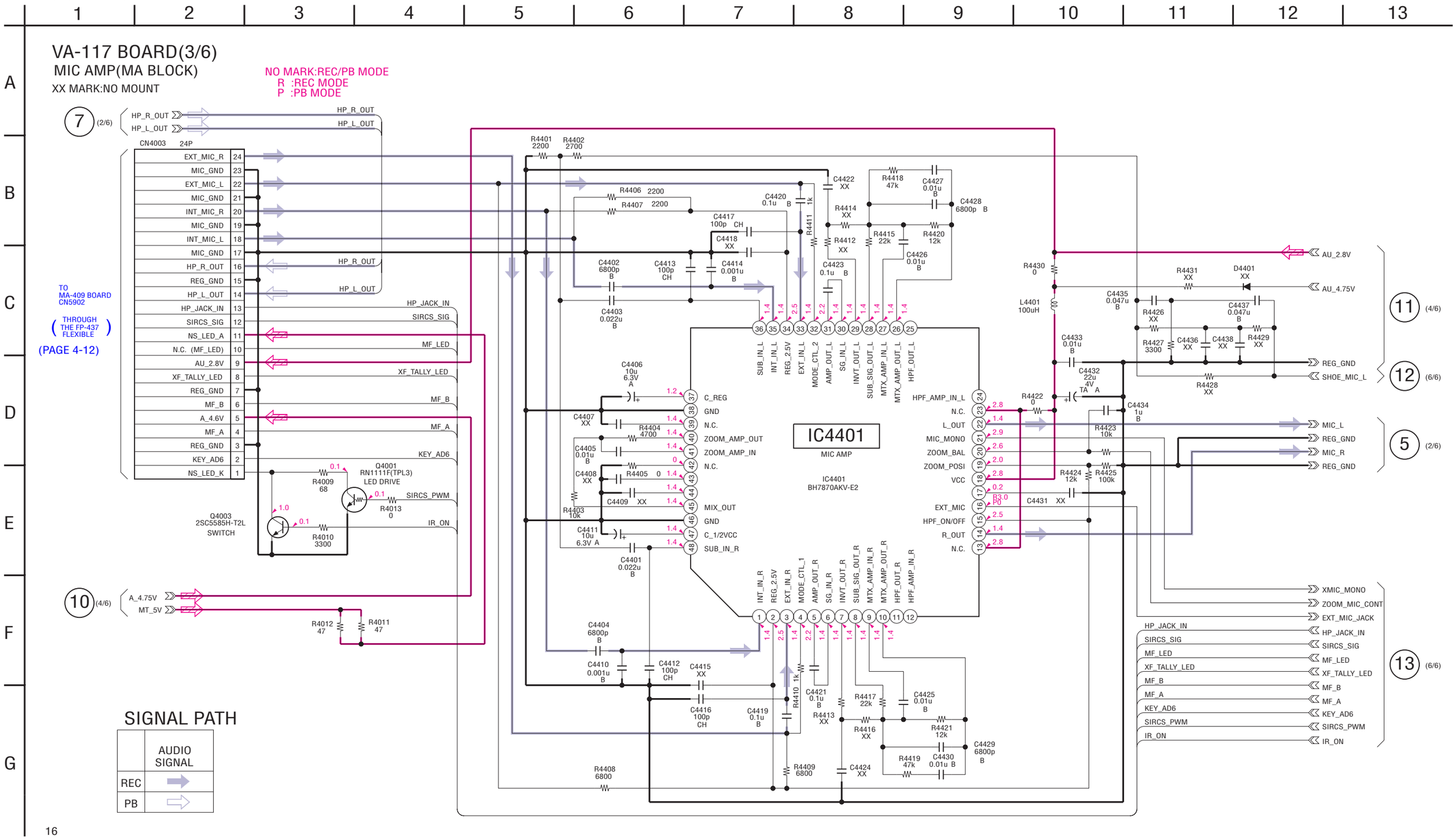


SIGNAL PATH

	AUDIO SIGNAL
REC	⇨
PB	⇨

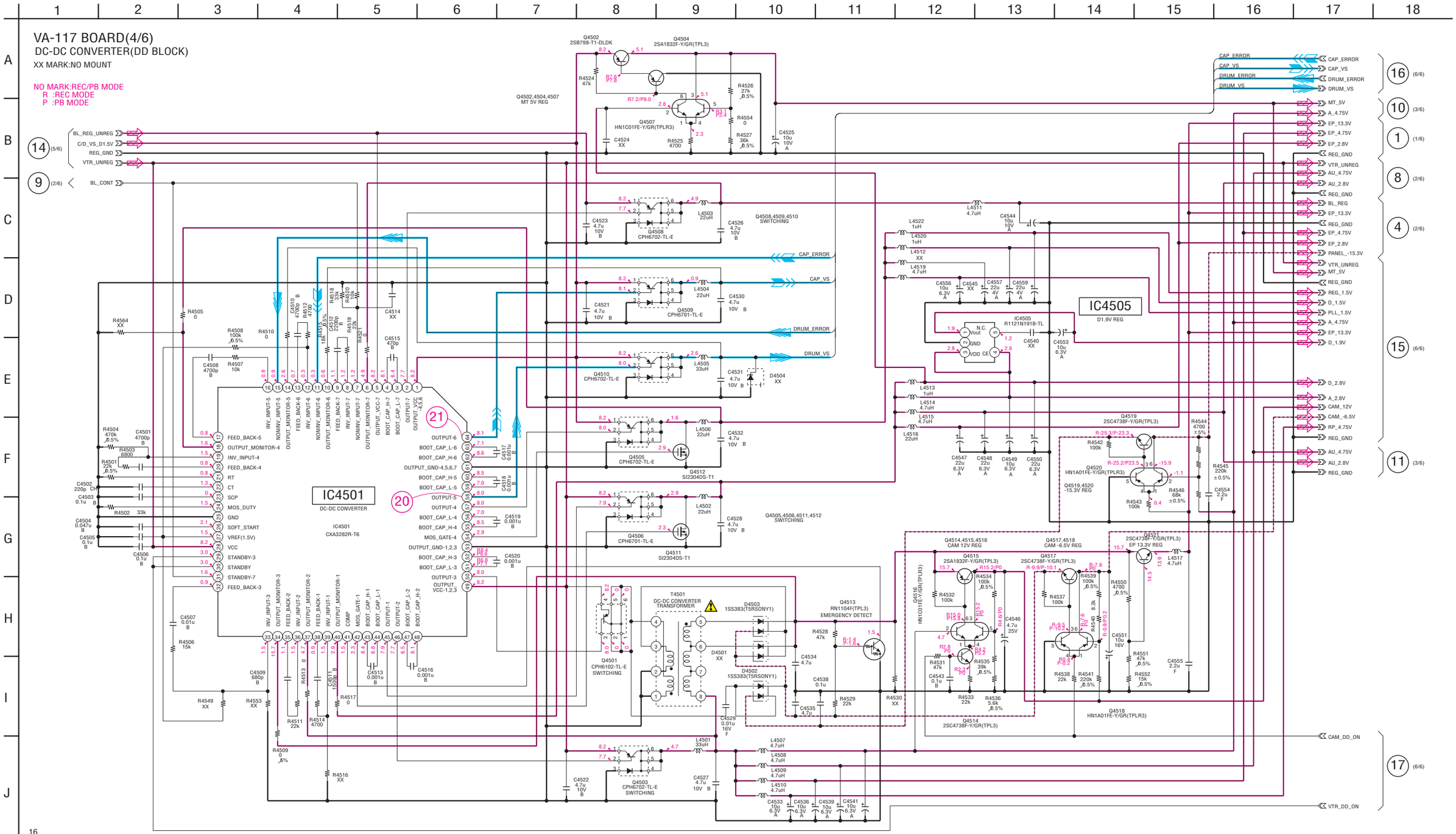
For Schematic Diagram

• Refer to page 4-85 for printed wiring board.



For Schematic Diagram

• Refer to page 4-85 for printed wiring board.
• Refer to page 4-95 for waveforms.



Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

For Schematic Diagram

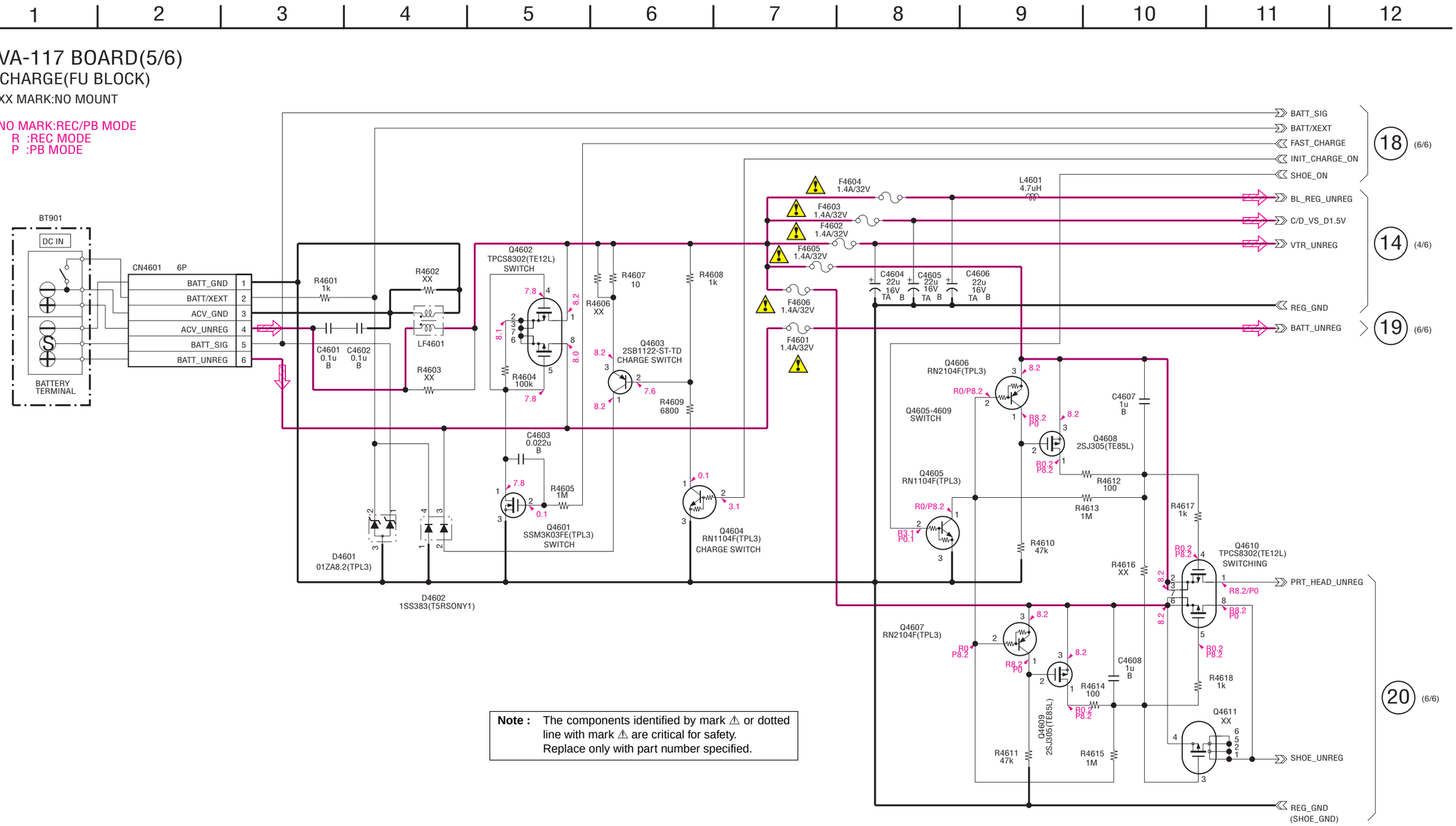
• Refer to page 4-85 for printed wiring board.

VA-117 BOARD(5/6)

CHARGE(FU BLOCK)

XX MARK:NO MOUNT

NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE



Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

For Schematic Diagram

• Refer to page 4-85 for printed wiring board.
• Refer to page 4-94 for waveforms.

VA-117 BOARD(6/6)
VIDEO I/O(TA BLOCK)
XX MARK:NO MOUNT
NO MARK:REC/PB MODE

CN4002 100P

TO VC-281 BOARD (16/16) CN1007 (PAGE 4-67)

IC4101 VIDEO IN/OUT,AGC

IC4101 AN2225NFHQBA

Q4101 2SC4738F-Y/GR(TPL3) BUFFER

Q4102 RN2104F(TPL3) SWITCH

Q4103 HN1C01FE-Y/GR(TPLR3) SWITCH

SIGNAL PATH

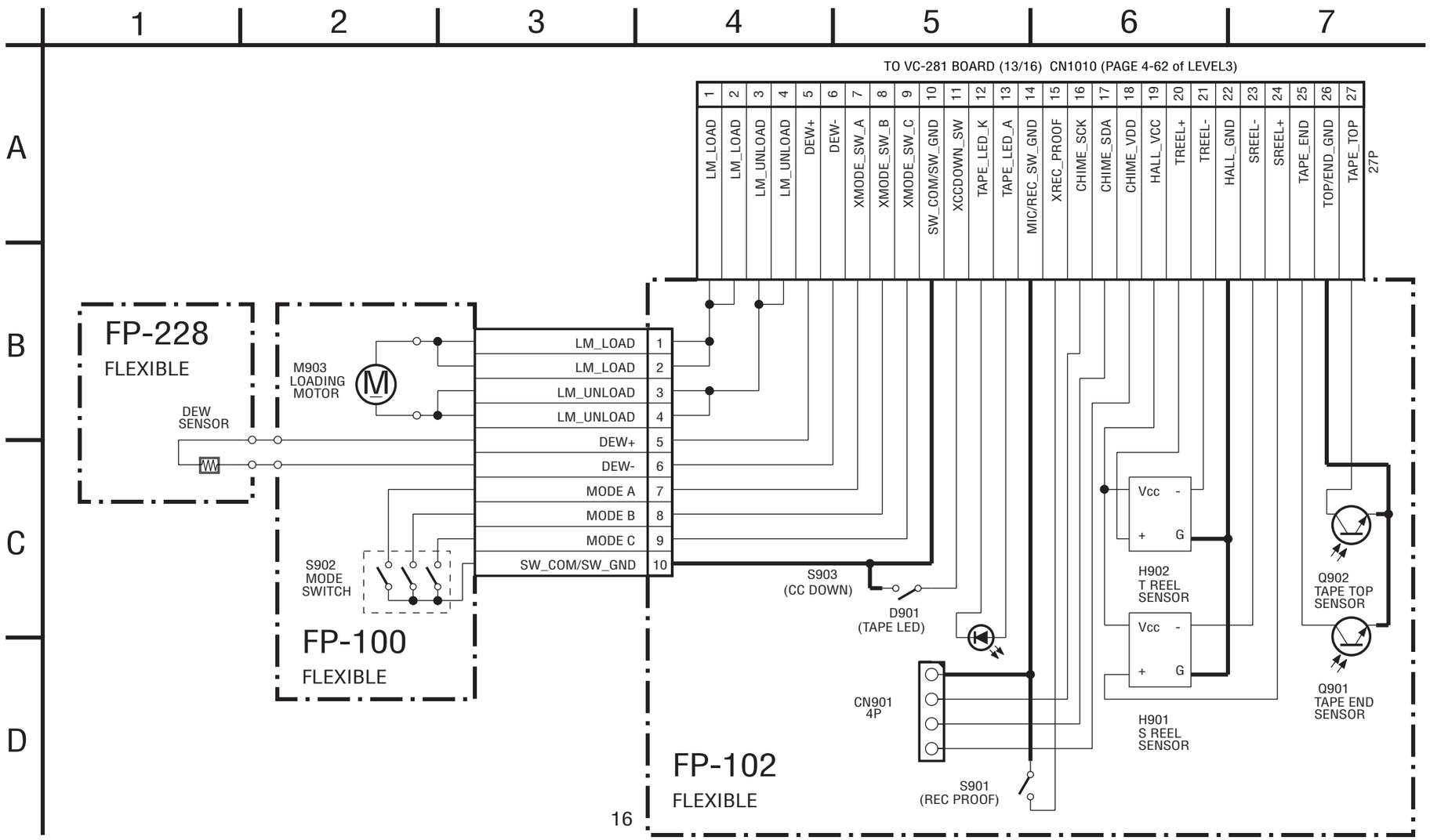
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	→	→	→	→
PB	⇨	⇨	⇨	⇨

SIGNAL PATH

	REC	REC/PB	PB
Drum servo (speed and phase)		→	
Capstan servo (speed and phase)		⇨	

FP-436 FLEXIBLE

INTELLIGENT ACCESSORY SHOE



16

Schematic diagram of the VC-281 board are not shown.
Pages from 4-37 to 4-68 are not shown.

COVER

4-3. PRINTED WIRING BOARDS

Link

CD-366 BOARD	PD-161 BOARD
FP-443 FLEXIBLE BOARD	LB-077 BOARD
JK-217 BOARD	FP-100, FP-228, FP-102 FLEXIBLE BOARDS
JK-218 BOARD	CK-108 BOARD (SIDE A)
MA-409 BOARD	CK-108 BOARD (SIDE B)
FP-444 FLEXIBLE BOARD	VA-117 BOARD (SIDE A)
FB-219 BOARD	VA-117 BOARD (SIDE B)

COMMON NOTE FOR PRINTED WIRING BOARDS		WAVEFORMS
MOUNTED PARTS LOCATION	CIRCUIT BOARDS LOCATION	FLEXIBLE BOARDS LOCATION

COVER

4-3. PRINTED WIRING BOARDS

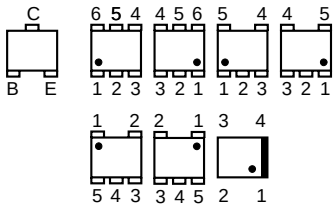
THIS NOTE IS COMMON FOR WIRING BOARDS
(In addition to this, the necessary note is printed in each block)

(For printed wiring boards)

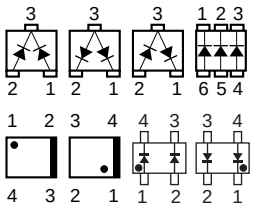
- : Uses unleaded solder.
- : Pattern from the side which enables seeing. (The other layers' patterns are not indicated)
- Through hole is omitted.
- Circled numbers refer to waveforms.
- There are a few cases that the part printed on diagram isn't mounted in this model.
- : panel designation

- Chip parts.

Transistor



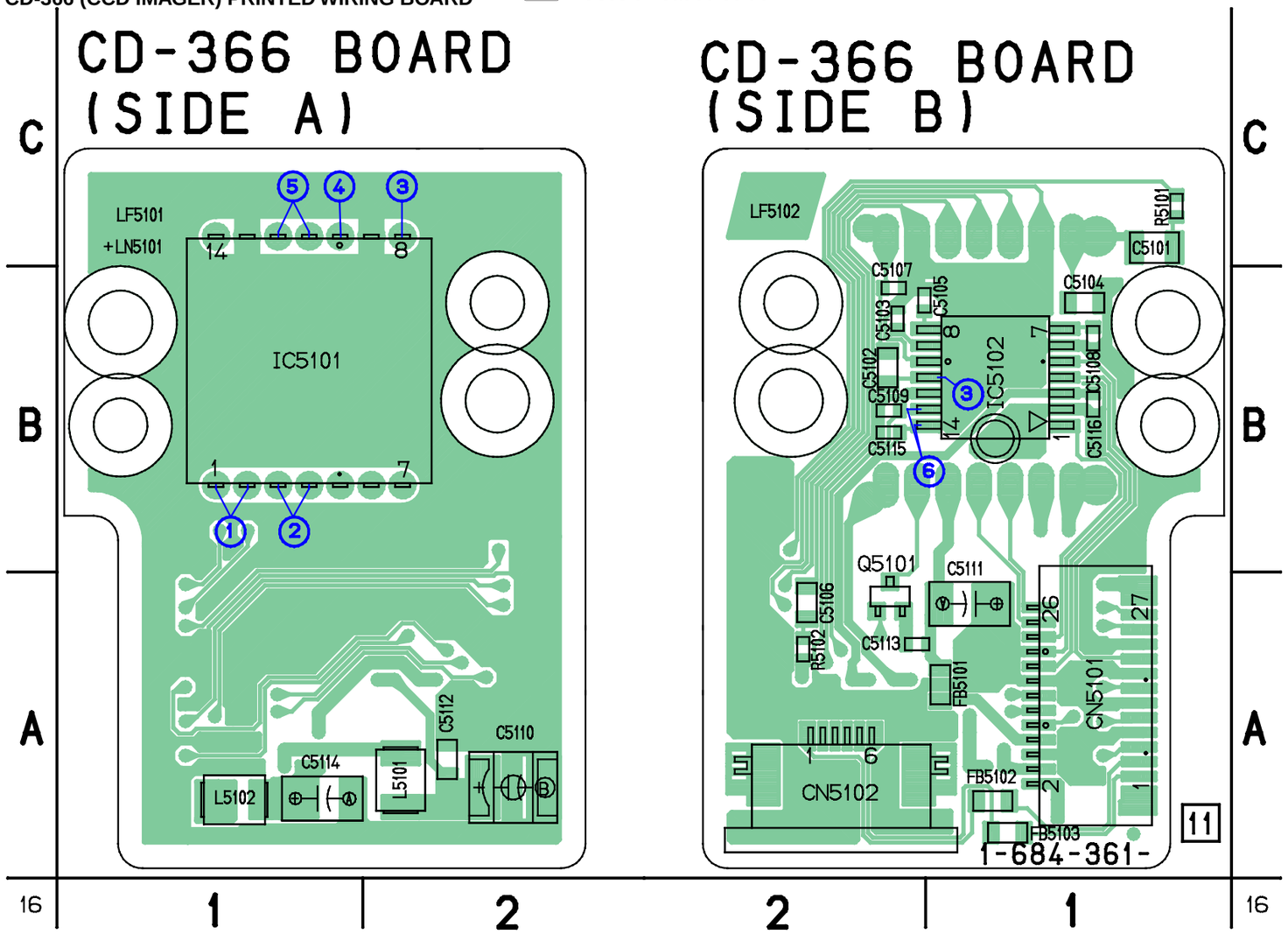
Diode



4-3. PRINTED WIRING BOARDS

CD-366 (CCD IMAGER) PRINTED WIRING BOARD

• : Uses unleaded solder.

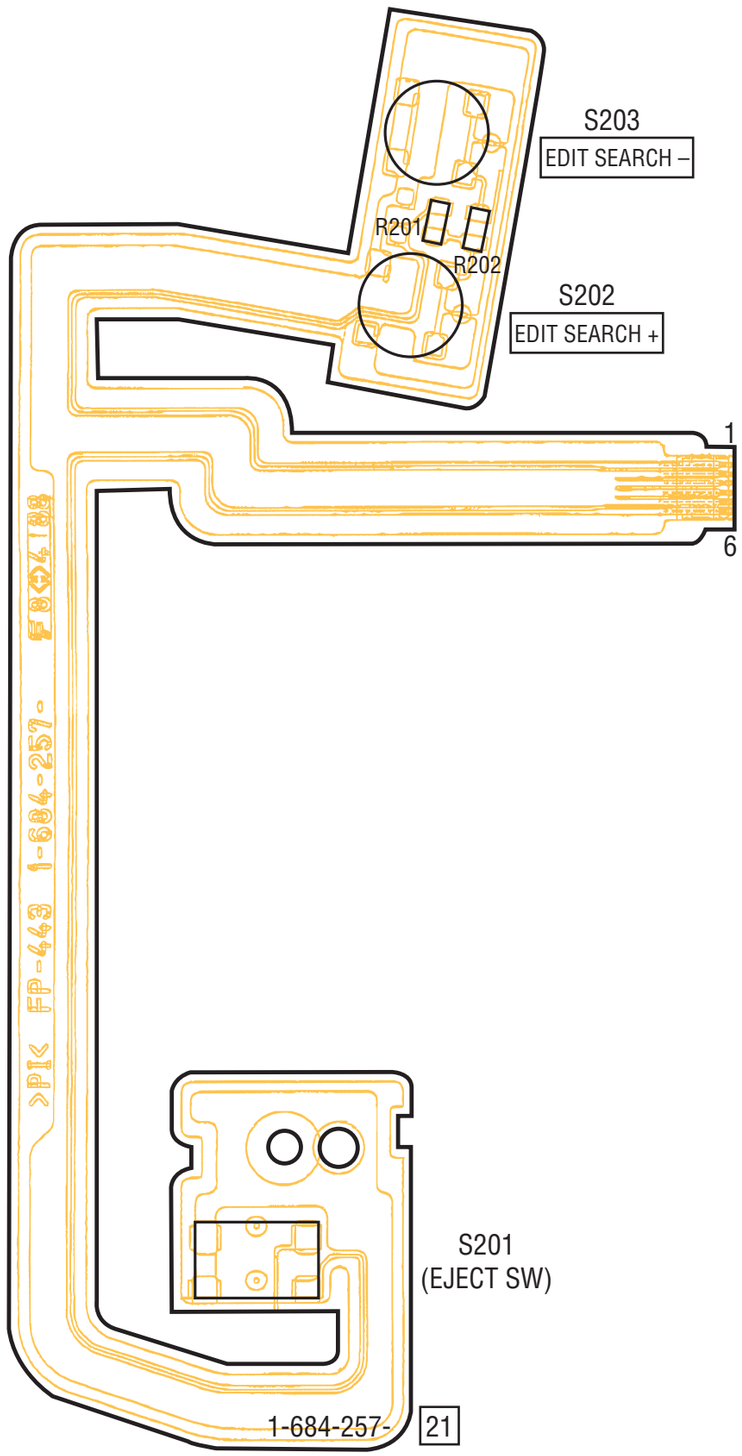


For printed wiring boards

- Refer to page 4-98 for parts location.
- This board is six-layer print board. However, the patterns of layers two and five have not been included in the diagram.

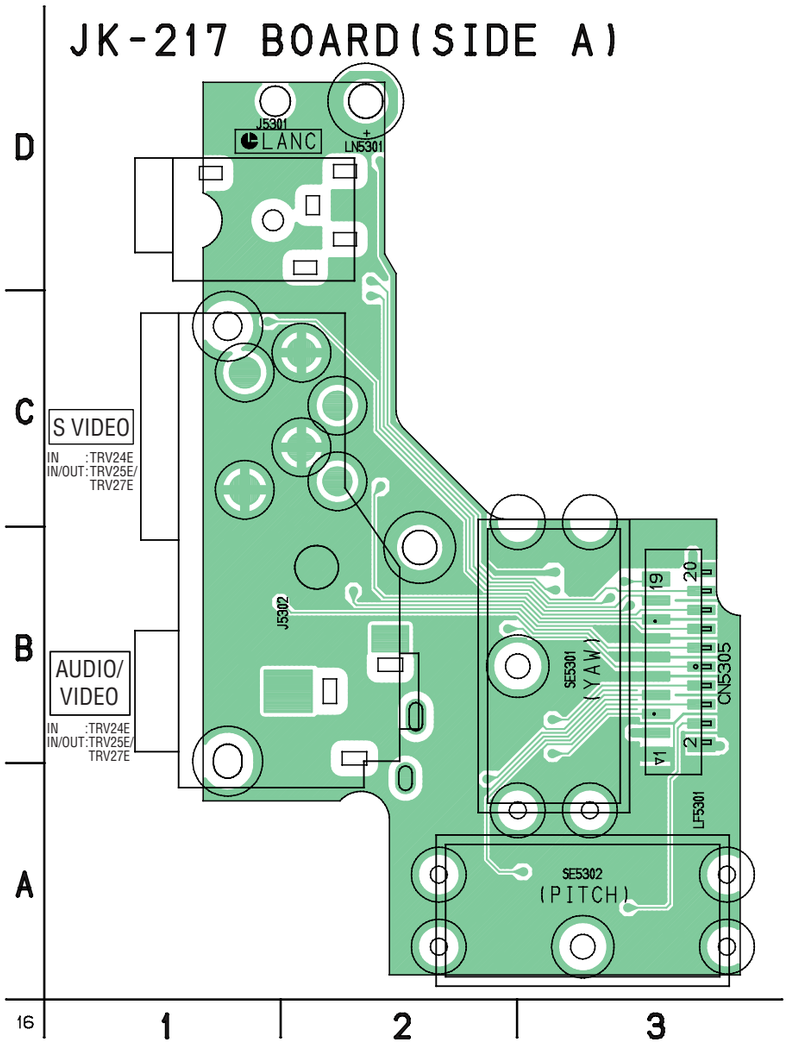
There are a few cases that the part printed on this diagram isn't mounted in this model.

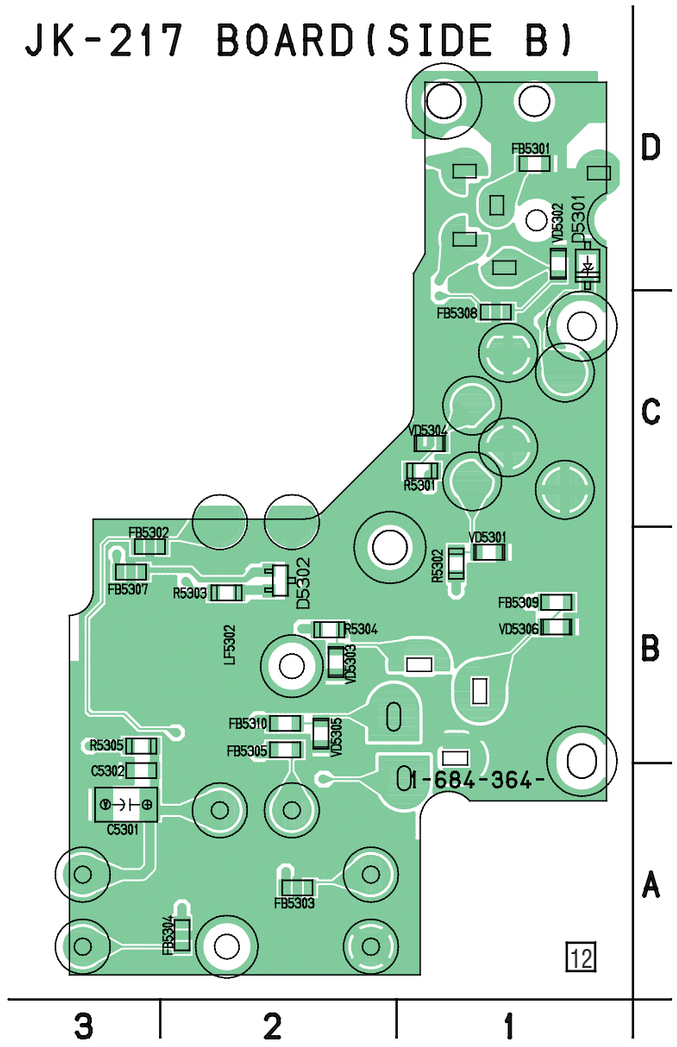
FP-443 FLEXIBLE BOARD

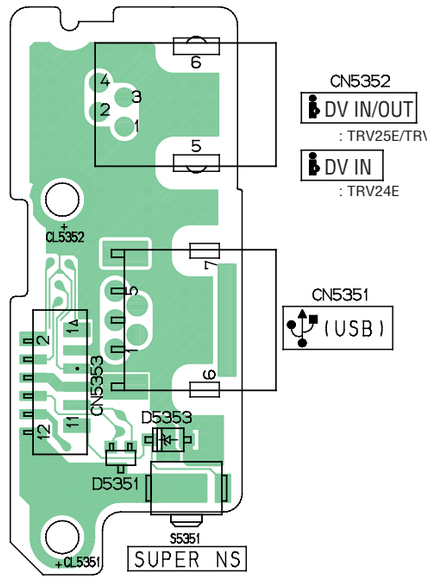


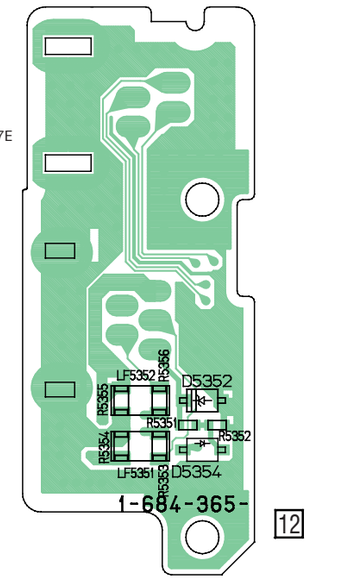
JK-217 (STEADY SHOT, A/D IN/OUT), JK-218 (DIGITAL IN/OUT) PRINTED WIRING BOARD

• : Uses unleaded solder.









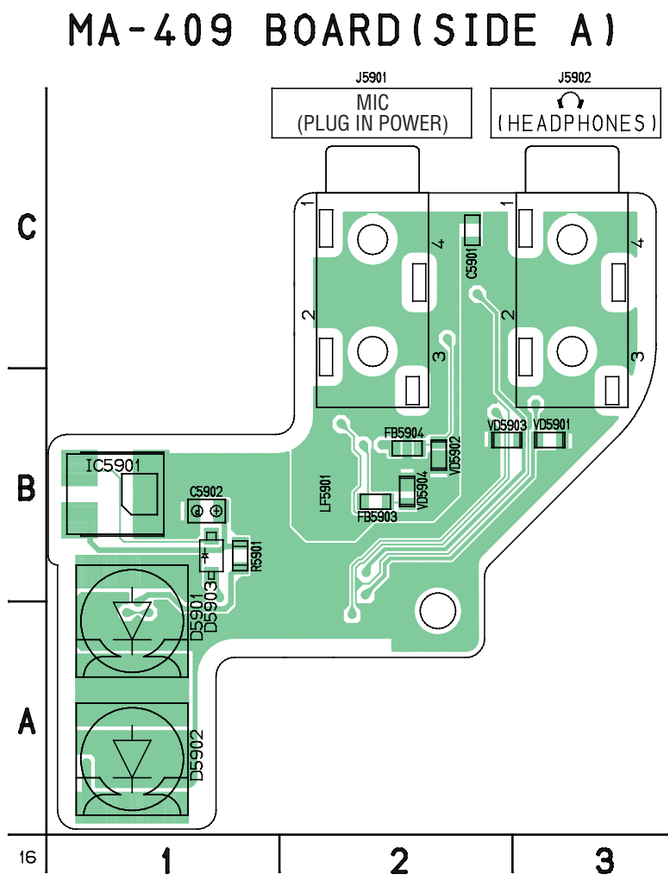
For printed wiring boards

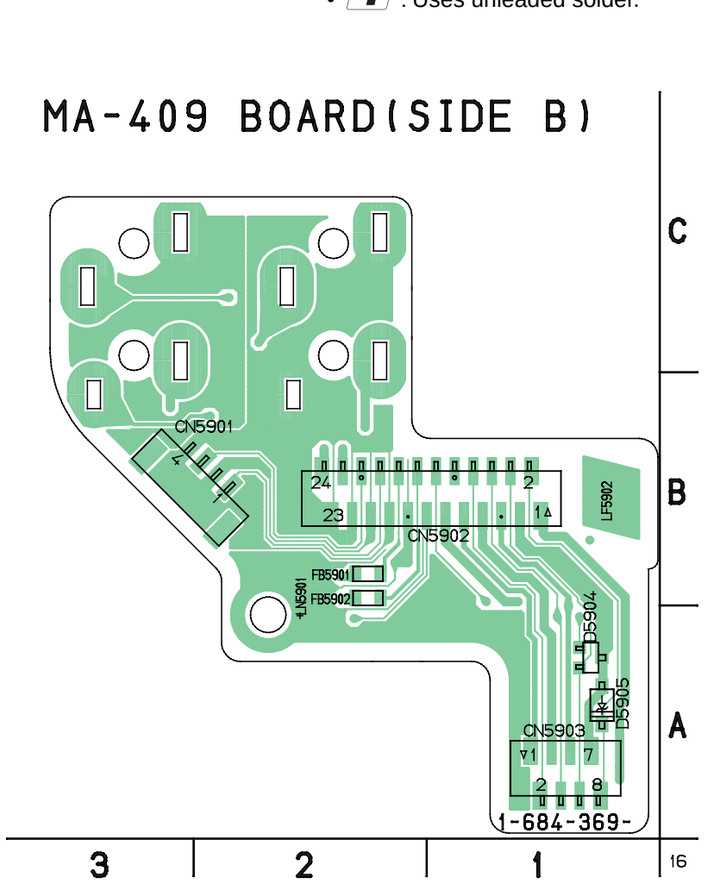
- Refer to page 4-98 for parts location.
- This board is six-layer print board. However, the patterns of layers two and five have not been included in the diagram.

There are a few cases that the part printed on this diagram isn't mounted in this model.

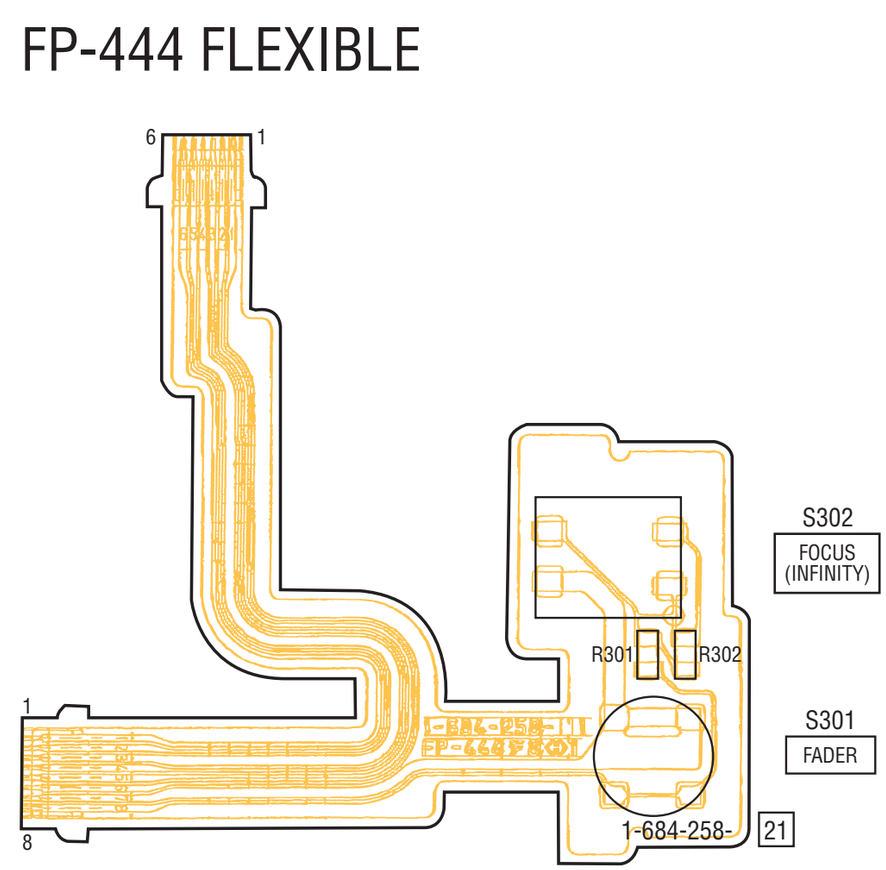
MA-409 (MIC IN, HP JACK, REMOTE CONTROL RECEIVER, SWITCH) PRINTED WIRING BOARD

• : Uses unleaded solder.





FP-444 FLEXIBLE BOARD



For printed wiring boards

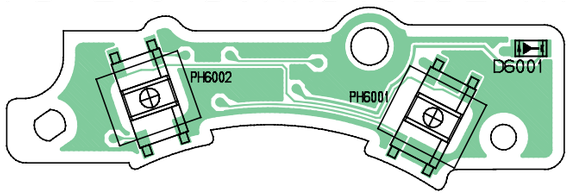
- Refer to page 4-98 for parts location.
- This board is six-layer print board. However, the patterns of layers two and five have not been included in the diagram.

There are a few cases that the part printed on this diagram isn't mounted in this model.

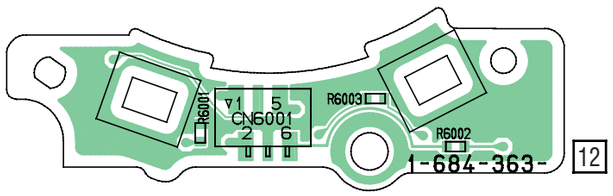
FB-219 (MANUAL FOCUS SENSOR), PD-161 (RGB DRIVE, TIMING GENERATOR, LCD DRIVE, BACK LIGHT) PRINTED WIRING BOARD

• : Uses unleaded solder.

FB-219 BOARD(SIDE A)



FB-219 BOARD(SIDE B)

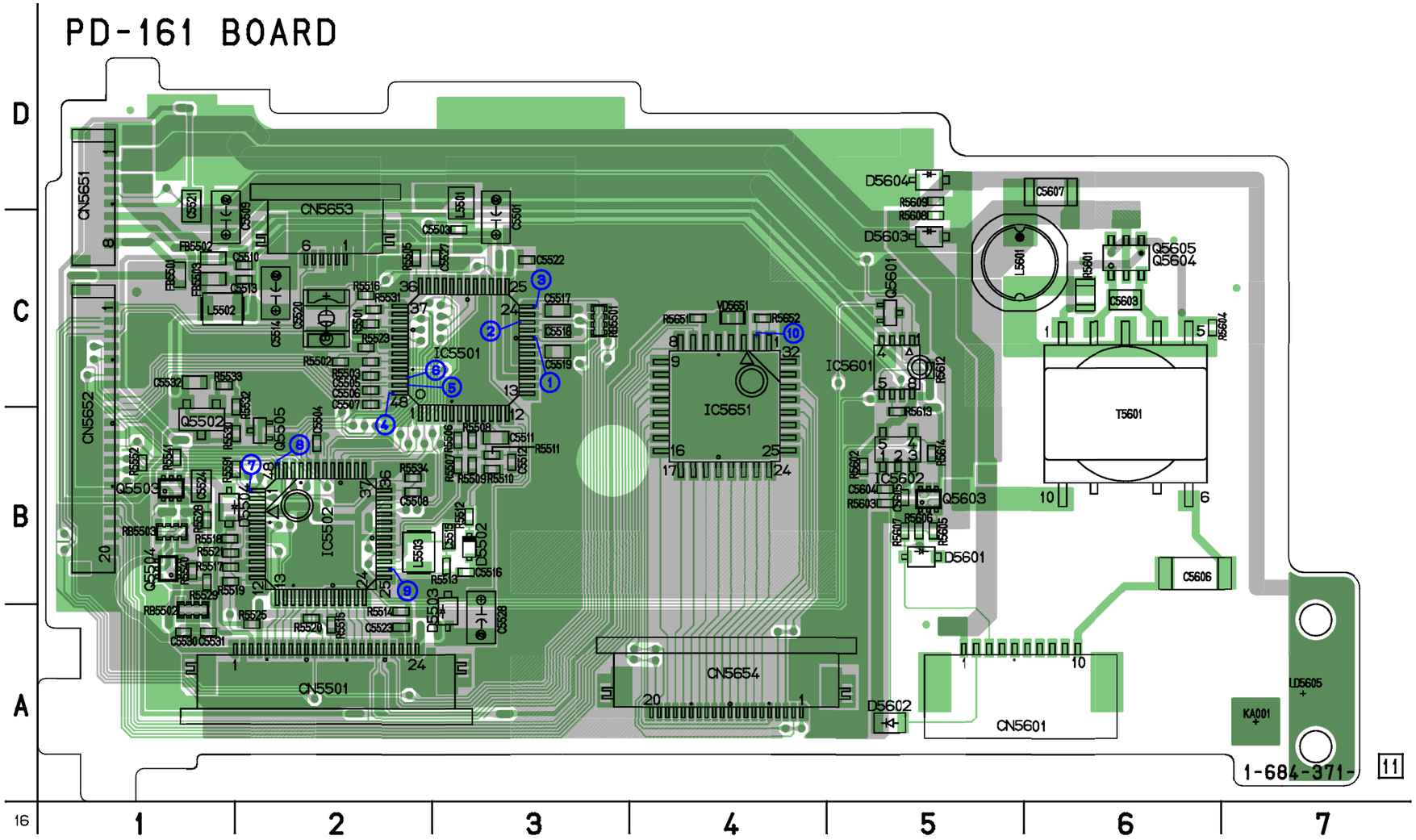


For printed wiring boards

• This board is six-layer print board. However, the patterns of layers two and five have not been included in the diagram.

There are a few cases that the part printed on this diagram isn't mounted in this model.

PD-161 BOARD



For printed wiring boards

• Refer to page 4-98 for parts location.

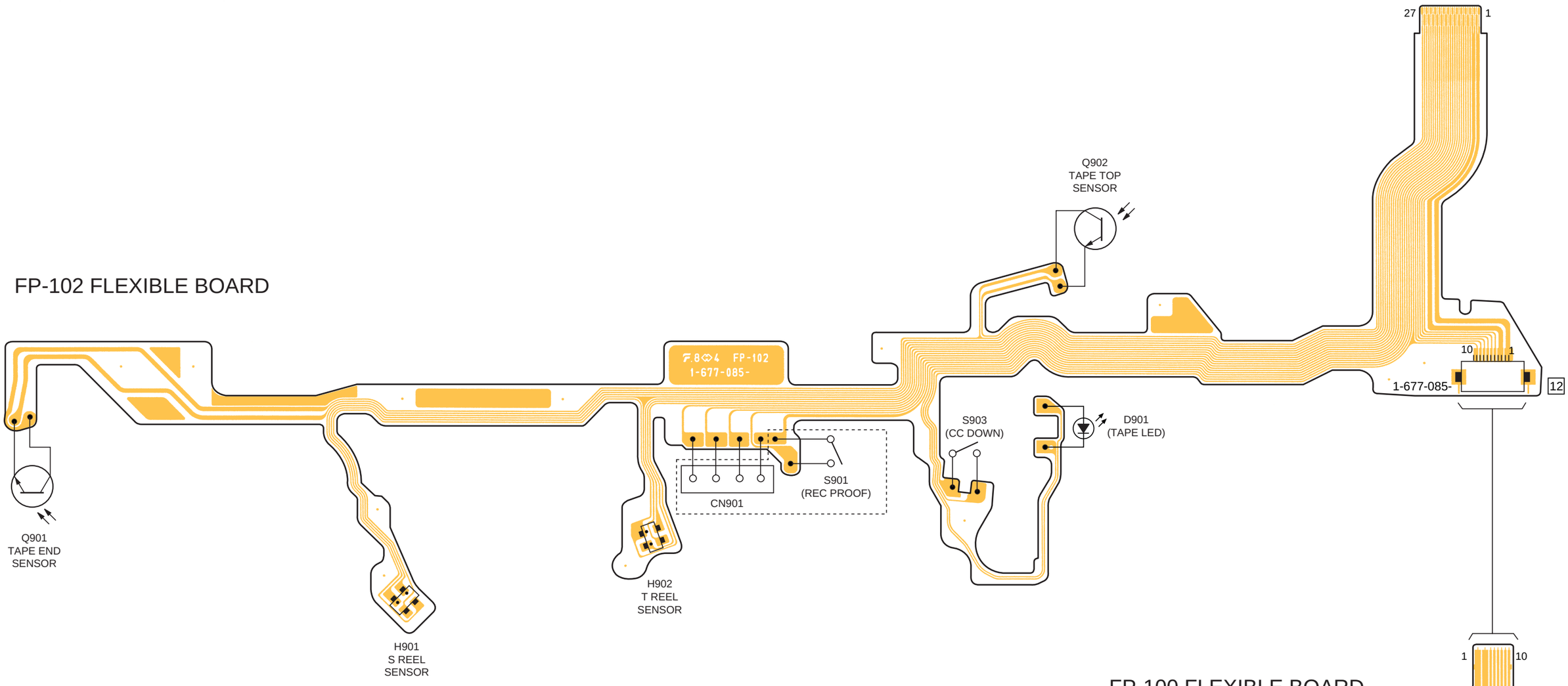
• This board is six-layer print board. However, the patterns of layers two and five have not been included in the diagram.

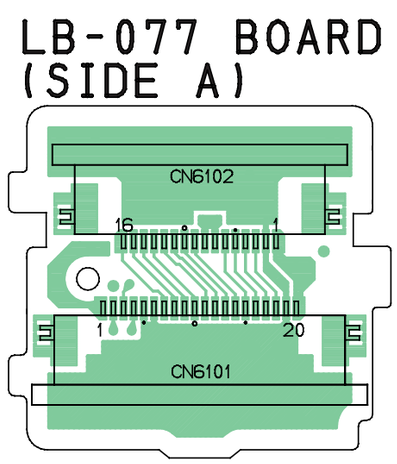
There are a few cases that the part printed on this diagram isn't mounted in this model.

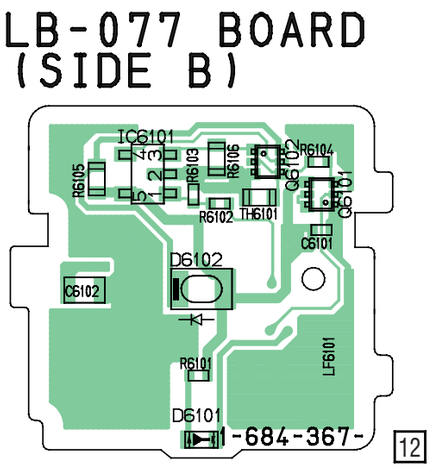
FP-100 (MODE SWITCH), FP-228 (DEW SENSOR), FP-102 (TAPE TOP/END SENSOR, S/T REEL) FLEXIBLE BOARD
LB-077 (EVF, EVF BACK LIGHT) PRINTED WIRING BOARD

- : Uses unleaded solder. (LB-077 board)

FP-102 FLEXIBLE BOARD



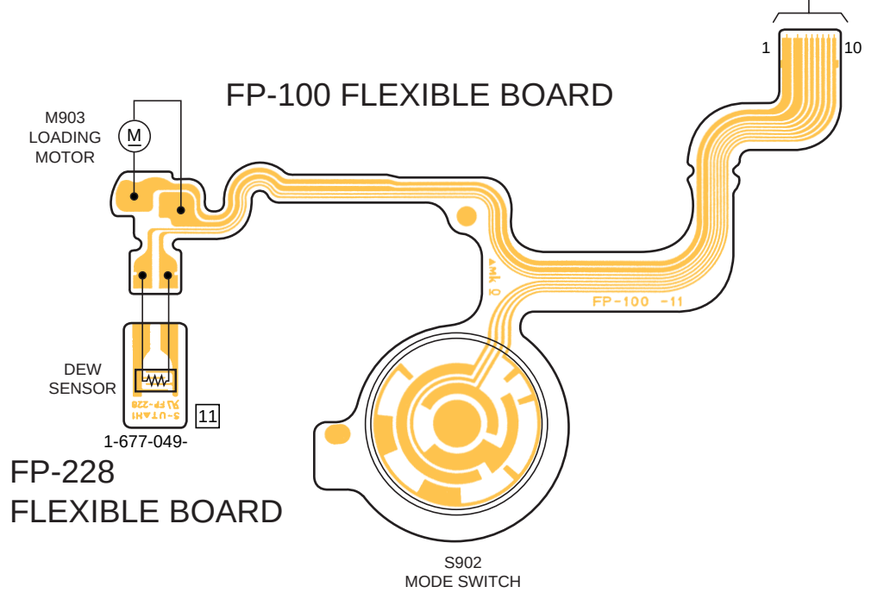




For printed wiring boards

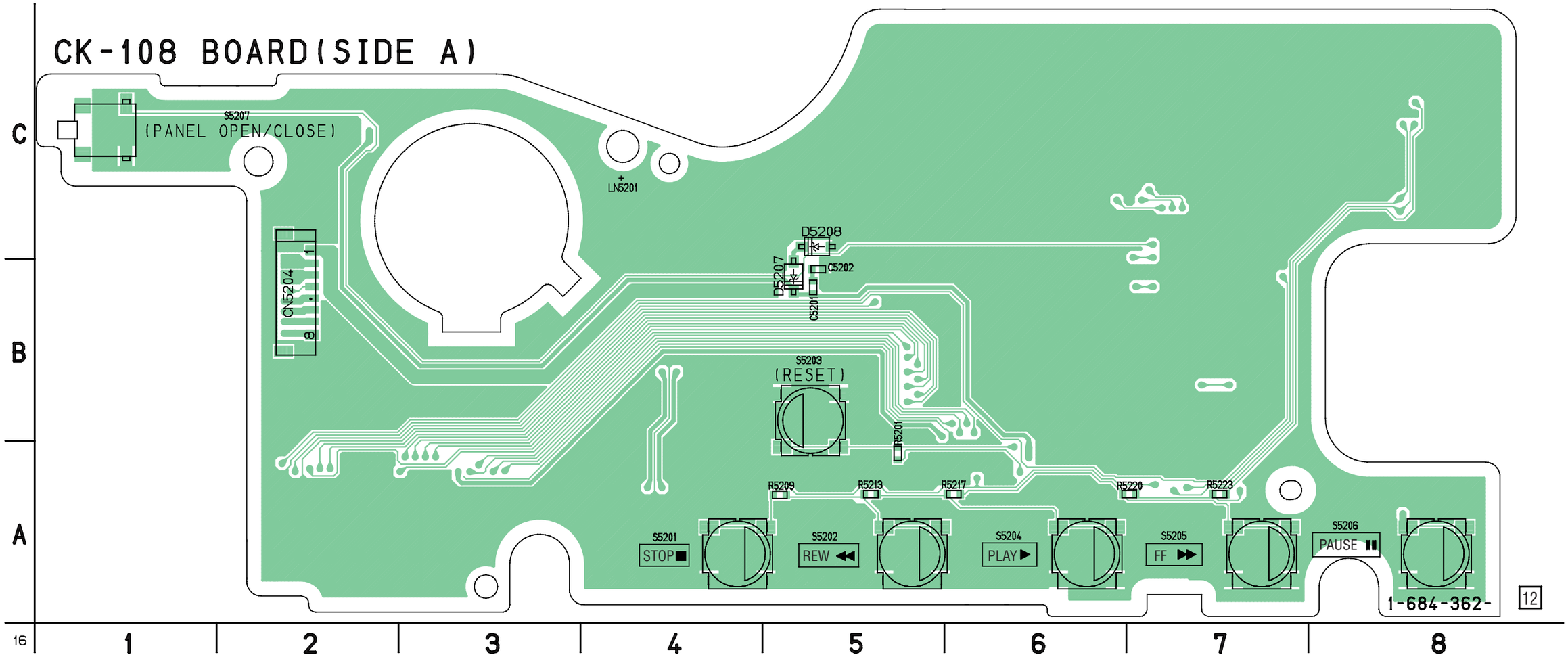
- This board is six-layer print board. However, the patterns of layers two and five have not been included in the diagram.

There are a few cases that the part printed on this diagram isn't mounted in this model.



CK-108 (SWITCH, CONNECTOR) PRINTED WIRING BOARD

- : Uses unleaded solder.



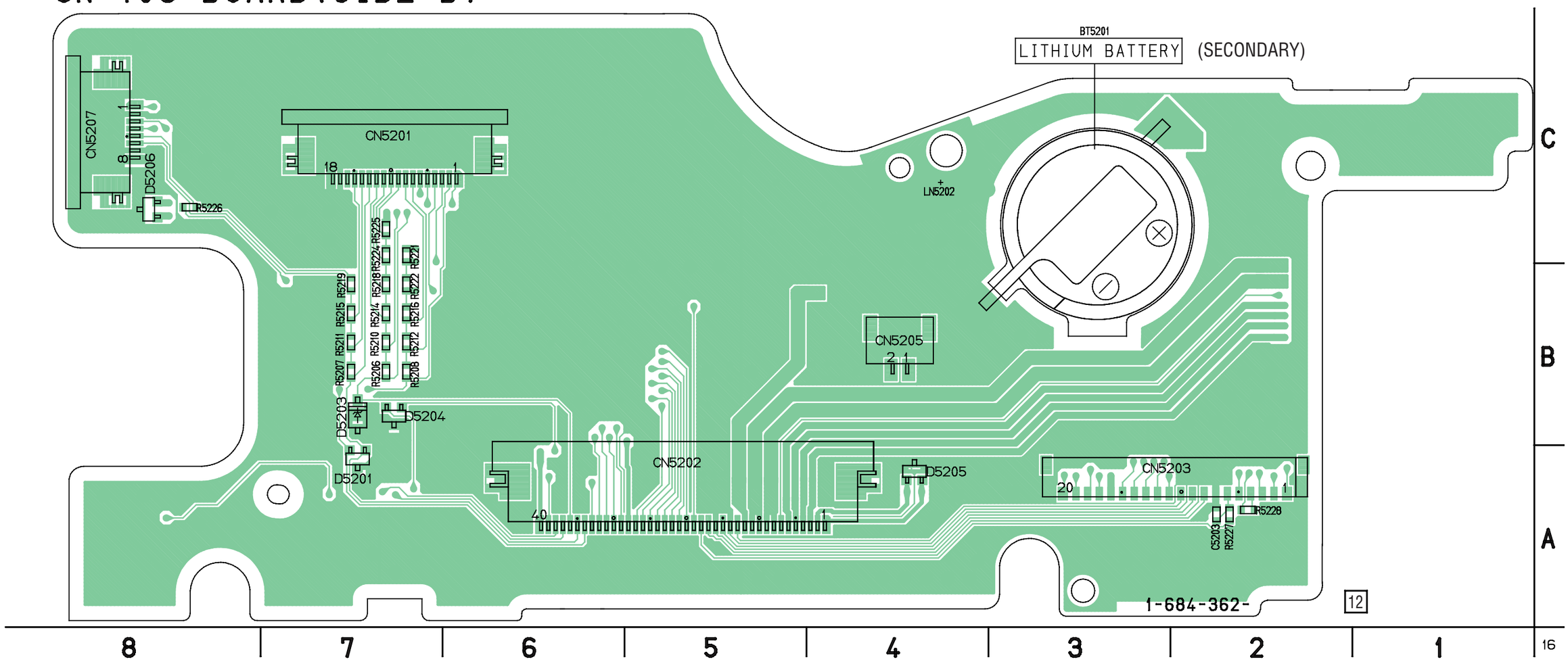
For printed wiring boards

- Refer to page 4-99 for parts location.
- This board is six-layer print board. However, the patterns of layers two and five have not been included in the diagram.

There are a few cases that the part printed on this diagram isn't mounted in this model.

- : Uses unleaded solder.

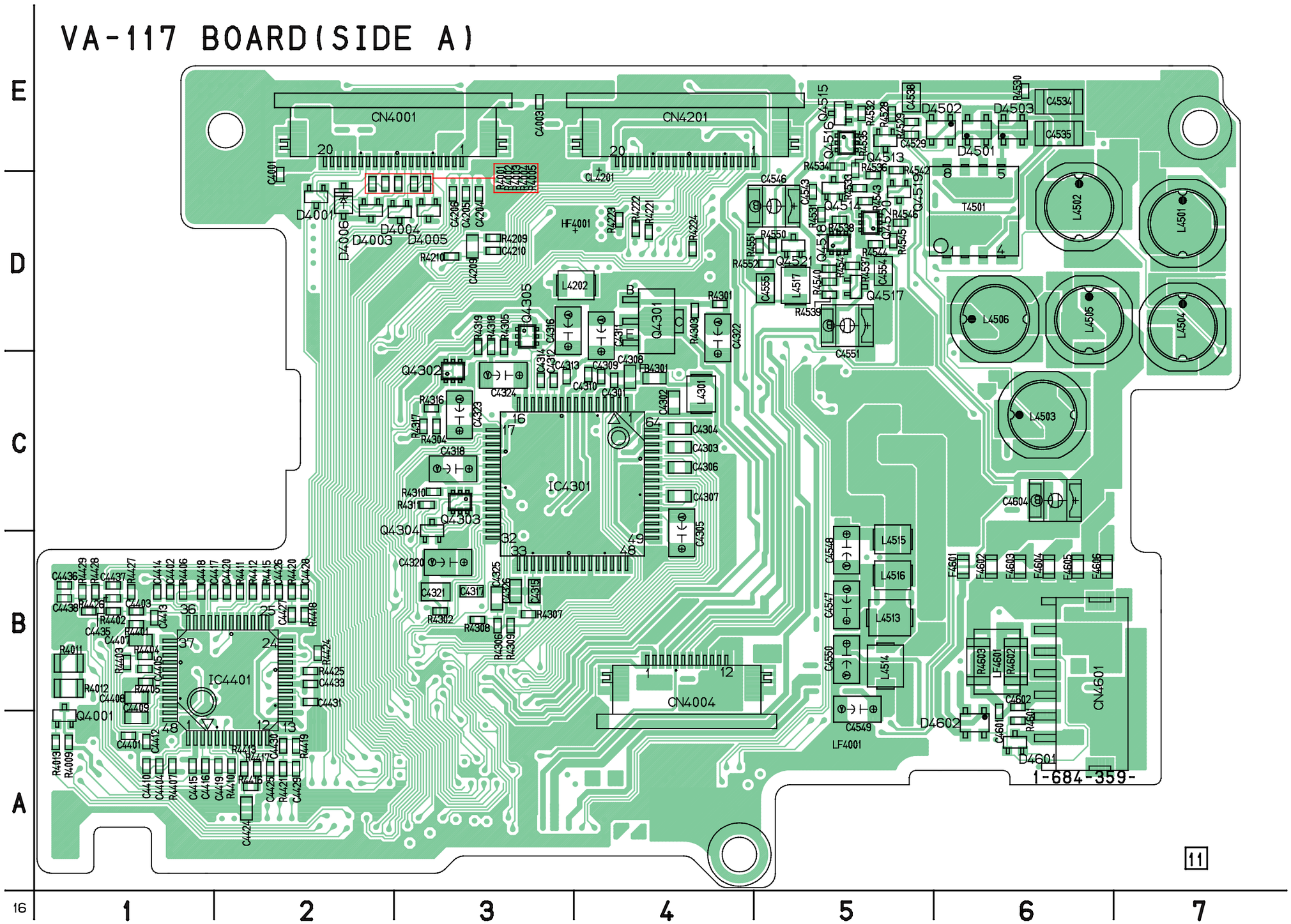
CK-108 BOARD(SIDE B)



CAUTION :
Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type.

VA-117 (RGB DRIVE, TG, AUDIO, MIC AMP, DC-DC CONVERTER, CHARGE, VIDEO I/O) PRINTED WIRING BOARD

• : Uses unleaded solder.



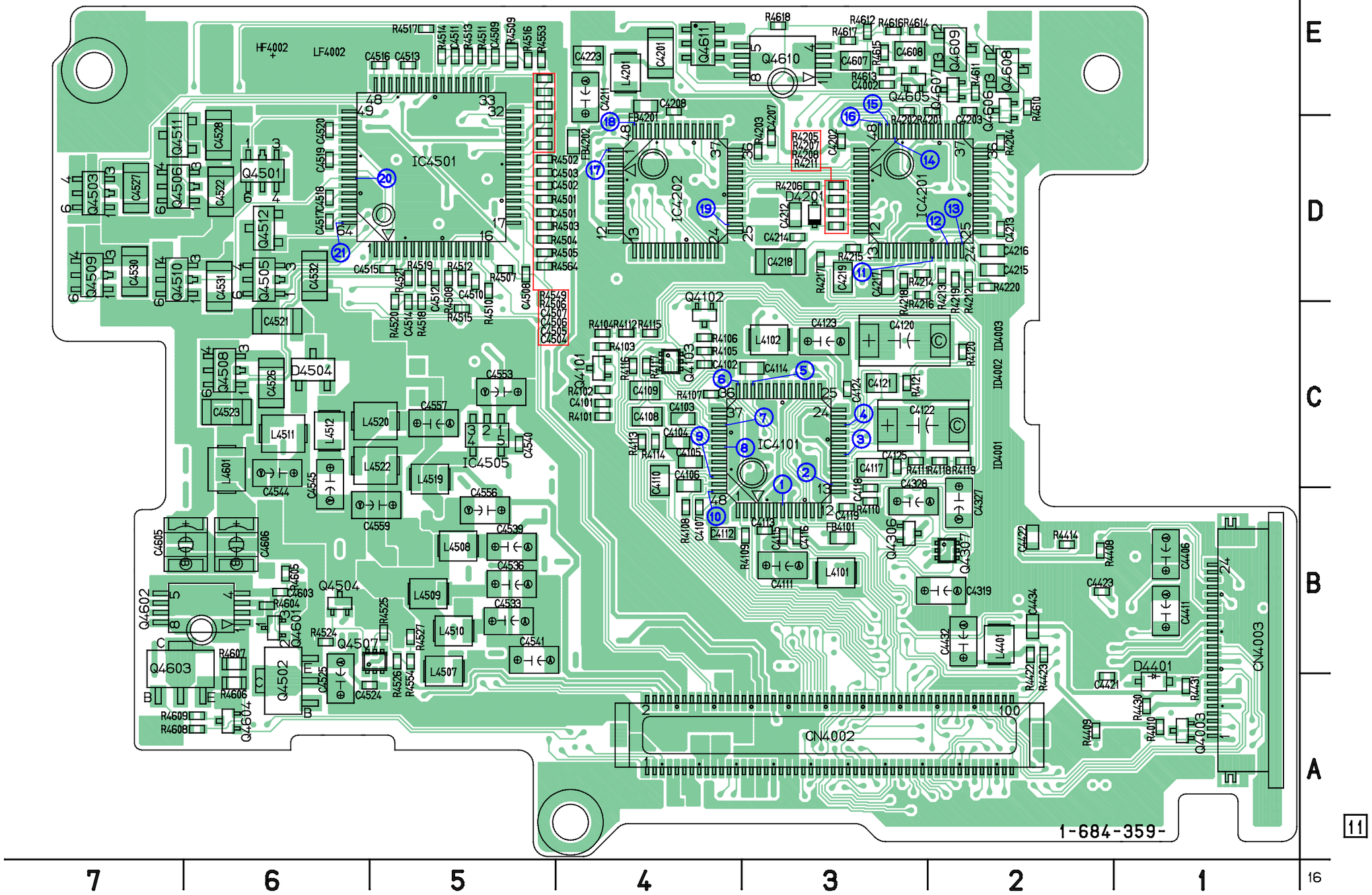
For printed wiring boards

- Refer to page 4-99 for parts location.
- This board is six-layer print board. However, the patterns of layers two and five have not been included in the diagram.

There are a few cases that the part printed on this diagram isn't mounted in this model.

• : Uses unleaded solder.

VA-117 BOARD(SIDE B)

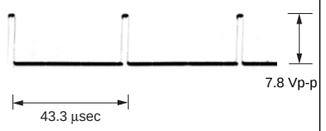


Printed wiring board of the VC-281board are not shown.
Pages from 4-89 to 4-92 are not shown.

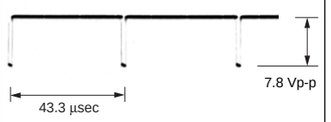
4-4. WAVEFORMS

CD-366 BOARD CAMERA REC

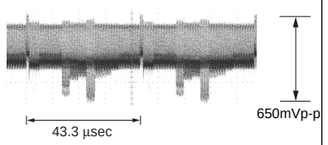
① IC5101 ①,②



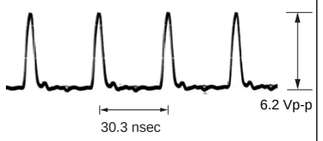
② IC5101 ③,④



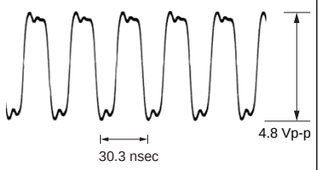
③ IC5101 ⑧,IC5102 ⑪



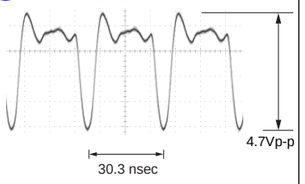
④ IC5101 ⑩



⑤ IC5101 ⑪,⑫

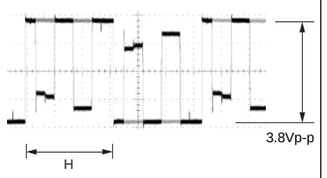


⑥ IC5102 ⑬,⑭

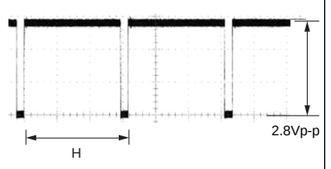


PD-161 BOARD REC/PB

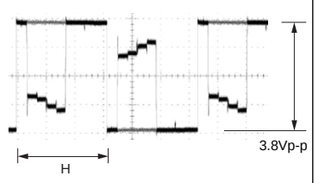
① IC5501 ⑳



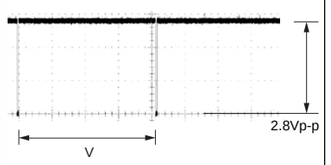
⑦ IC5502 ①



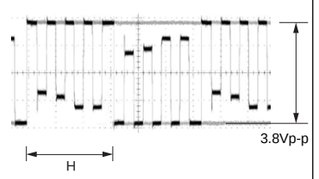
② IC5501 ㉒



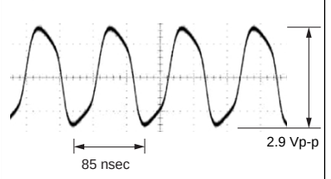
⑧ IC5502 ㊽



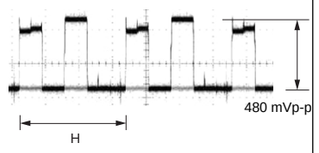
③ IC5501 ㉔



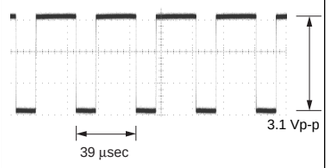
⑨ IC5502 ㉖



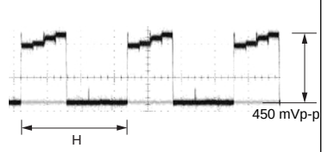
④ IC5501 ㊽



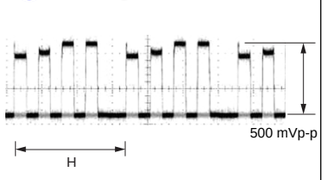
⑩ IC5651 ②



⑤ IC5501 ㊼

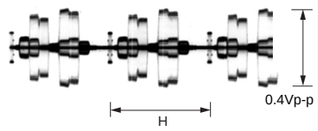


⑥ IC5501 ㊻

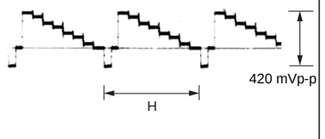


VA-117 BOARD

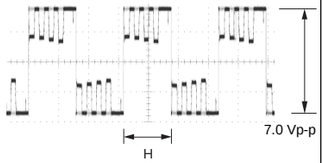
① IC4101 ⑦
CAMERA REC
S JACK IN



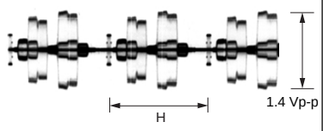
⑦ IC4101 ㊴
LINE REC (S-VIDEO)



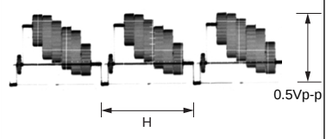
⑬ IC4201 ㉔
REC/PB



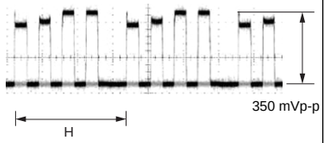
② IC4101 ⑭
CAMERA REC
S JACK IN



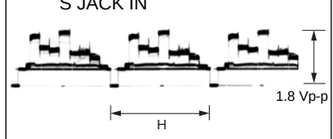
⑧ IC4101 ㊷
LINE REC (AV VIDEO)



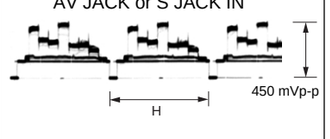
⑭ IC4201 ㊻
REC/PB



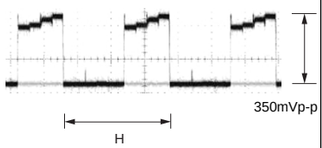
③ IC4101 ⑱
CAMERA REC/PB
S JACK IN



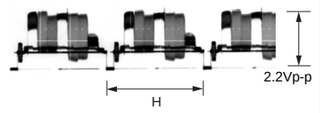
⑨ IC4101 ㊻
CAMERA REC/PB
AV JACK or S JACK IN



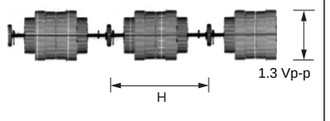
⑮ IC4201 ㊼
REC/PB



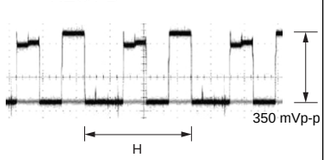
④ IC4101 ㉒
CAMERA REC/PB
AV JACK IN



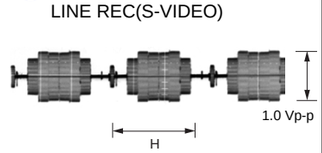
⑩ IC4101 ㊽
LINE REC (S-VIDEO)



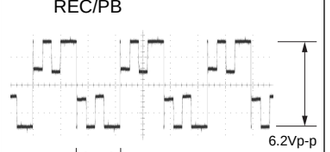
⑯ IC4201 ㊽
REC/PB



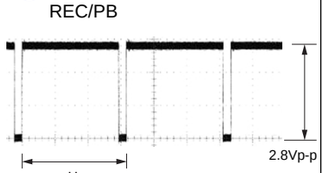
⑤ IC4101 ㉞
LINE REC(S-VIDEO)



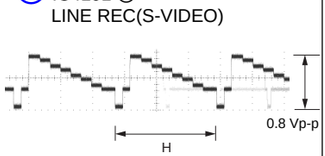
⑪ IC4201 ⑳
REC/PB



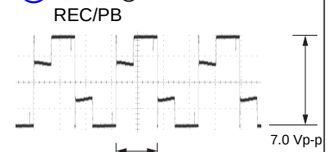
⑰ IC4202 ①
REC/PB



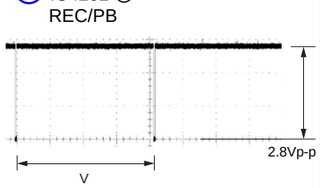
⑥ IC4101 ㊱
LINE REC(S-VIDEO)



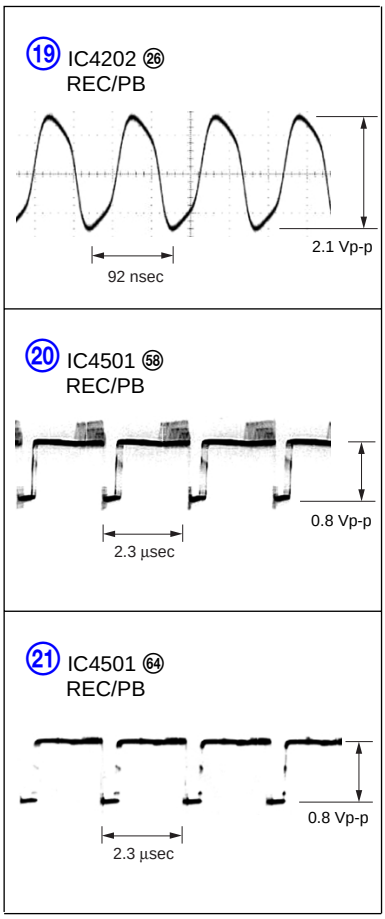
⑫ IC4201 ㉒
REC/PB



⑱ IC4202 ㊽
REC/PB



VA-117 BOARD



Waveforms of the VC-281 board are not shown.
Pages from 4-96 to 4-97 are not shown.

4-5. MOUNTED PARTS LOCATION

no mark : side A
* mark : side B

CD-366 BOARD

*	C5101	C-1
*	C5102	B-2
*	C5103	B-2
*	C5104	B-1
*	C5105	B-1
*	C5106	A-2
*	C5107	B-2
*	C5108	B-1
*	C5109	B-2
	C5110	A-2
*	C5111	A-1
	C5112	A-2
*	C5113	A-2
	C5114	A-1
*	C5115	B-2
*	C5116	B-1
*	CN5101	A-1
*	CN5102	A-2
*	FB5101	A-1
*	FB5102	A-1
*	FB5103	A-1
	IC5101	B-1
*	IC5102	B-1
	L5101	A-2
	L5102	A-1
*	Q5101	A-2
*	R5101	C-1
*	R5102	A-2

JK-217 BOARD

*	C5301	A-3
*	C5302	A-3
	CN5305	B-3
*	D5301	D-1
*	D5302	B-2
*	FB5301	D-1
*	FB5302	B-3
*	FB5303	A-2
*	FB5304	A-2
*	FB5305	B-2
*	FB5307	B-3
*	FB5308	C-1
*	FB5309	B-1
*	FB5310	B-2
	J5301	D-1
	J5302	B-2
*	R5301	C-1
*	R5302	B-1
*	R5303	B-2
*	R5304	B-2
*	R5305	B-3
	SE5301	B-3
	SE5302	A-3
*	VD5301	B-1
*	VD5302	D-1
*	VD5303	B-2
*	VD5304	C-1
*	VD5305	B-2
*	VD5306	B-1

MA-409 BOARD

	C5901	C-2
	C5902	B-1
*	CN5901	B-2
*	CN5902	B-1
*	CN5903	A-1
	D5901	A-1
	D5902	A-1
	D5903	B-1
*	D5904	A-1
*	D5905	A-1
*	FB5901	B-2
*	FB5902	B-2
	FB5903	B-2
	FB5904	B-2
	IC5901	B-1
	J5901	C-2
	J5902	C-3
	R5901	B-1
	VD5901	B-3
	VD5902	B-2
	VD5903	B-2
	VD5904	B-2

PD-161 BOARD

	C5501	C-3
	C5503	C-3
	C5504	B-2
	C5505	C-2
	C5506	C-2
	C5507	C-2
	C5508	B-2
	C5509	C-1
	C5510	C-2
	C5511	B-3
	C5512	B-3
	C5513	C-2
	C5514	C-2
	C5515	B-3
	C5516	B-3
	C5517	C-3
	C5518	C-3
	C5519	C-3
	C5520	C-2
	C5521	D-1
	C5522	C-3
	C5523	A-2
	C5524	B-1
	C5527	C-3
	C5528	A-3
	C5530	A-1
	C5531	A-1
	C5532	C-1
	C5603	C-6
	C5604	B-5
	C5605	B-5
	C5606	B-6
	C5607	D-6
	CN5501	A-2
	CN5601	A-5
	CN5651	D-1
	CN5652	B-1
	CN5653	C-2
	CN5654	A-4
	D5502	B-3
	D5503	A-3
	D5504	B-1
	D5601	B-5
	D5602	A-5
	D5603	C-5
	D5604	D-5
	FB5501	C-1
	FB5502	C-1
	FB5503	C-1
	IC5501	C-3
	IC5502	B-2
	IC5601	C-5
	IC5602	B-5
	IC5651	C-4
	L5501	D-3
	L5502	C-1
	L5503	B-2
	L5601	C-5
	Q5502	B-1
	Q5503	B-1
	Q5504	B-1
	Q5505	B-2
	Q5601	C-5
	Q5603	B-5
	Q5604	C-6
	Q5605	C-6
	R5501	C-2
	R5502	C-2
	R5503	C-2
	R5505	C-2
	R5506	B-3
	R5507	B-3
	R5508	B-3
	R5509	B-3
	R5510	B-3
	R5511	B-3
	R5512	B-3
	R5513	B-3
	R5514	A-2
	R5515	A-2
	R5516	C-2
	R5517	B-1
	R5518	B-1
	R5519	B-1
	R5520	A-2
	R5521	B-1
	R5523	C-2
	R5525	A-2
	R5528	B-1
	R5529	B-1
	R5530	B-1
	R5531	C-2
	R5532	B-2
	R5533	C-1
	R5534	B-2
	R5540	B-1
	R5541	B-1
	R5552	B-1
	R5591	B-1
	R5601	C-6
	R5602	B-5
	R5603	B-5
	R5604	C-6
	R5605	B-5
	R5606	B-5
	R5607	B-5
	R5608	C-5
	R5609	D-5
	R5612	C-5
	R5613	B-5
	R5614	B-5
	R5651	C-4
	R5652	C-4
	RB5501	C-3
	RB5502	A-1
	RB5503	B-1
	T5601	B-6
	VD5651	C-4

COVER

4-3. PRINTED WIRING BOARDS

no mark : side A
* mark : side B

CK-108 BOARD

*	BT5201	C-3
	C5201	B-5
	C5202	B-5
*	C5203	A-2
*	CN5201	C-7
*	CN5202	A-5
*	CN5203	A-2
	CN5204	B-2
*	CN5205	B-4
*	CN5207	C-8
*	D5201	A-7
*	D5203	B-7
*	D5204	B-7
*	D5205	A-4
*	D5206	C-8
	D5207	B-5
	D5208	C-5
	R5201	A-5
*	R5206	B-7
*	R5207	B-7
*	R5208	B-7
	R5209	A-5
*	R5210	B-7
*	R5211	B-7
*	R5212	B-7
	R5213	A-5
*	R5214	B-7
*	R5215	B-7
*	R5216	B-7
	R5217	A-6
*	R5218	B-7
*	R5219	B-7
	R5220	A-7
*	R5221	C-7
*	R5222	B-7
	R5223	A-7
*	R5224	C-7
*	R5225	C-7
*	R5226	C-8
*	R5227	A-2
*	R5228	A-2
	S5201	A-4
	S5202	A-5
	S5203	B-5
	S5204	A-6
	S5205	A-7
	S5206	A-8
	S5207	C-1

VA-117 BOARD

	C4001	D-2
*	C4002	E-3
	C4003	E-3
*	C4101	C-4
*	C4102	C-4
*	C4103	C-4
*	C4104	C-4
*	C4105	C-4
*	C4106	C-4
*	C4107	B-4
*	C4108	C-4
*	C4109	C-4
*	C4110	C-4
*	C4111	B-3
*	C4112	B-4
*	C4113	B-3
*	C4114	C-3
*	C4115	B-3
*	C4116	B-3
*	C4117	C-3
*	C4118	B-3
*	C4119	B-3
*	C4120	C-3
*	C4121	C-3
*	C4122	C-3
*	C4123	C-3
*	C4124	C-3
*	C4125	C-3
*	C4201	E-4
*	C4202	D-3
*	C4203	E-2
	C4204	D-3
	C4205	D-3
	C4206	D-3
*	C4207	D-3
*	C4208	E-4
	C4209	D-3
	C4210	D-3
*	C4211	E-4
*	C4212	D-3
*	C4213	D-2
*	C4214	D-3
*	C4215	D-2
*	C4216	D-2
*	C4217	D-3
*	C4218	D-3
*	C4219	D-3
*	C4223	E-4
	C4301	C-4
	C4302	C-4
	C4303	C-4
	C4304	C-4
	C4305	B-4
	C4306	C-4
	C4307	C-4
	C4308	C-4
	C4309	C-4
	C4310	C-4
	C4311	D-4
	C4312	C-3
	C4313	C-3
	C4314	C-3
	C4315	B-3
	C4316	D-3
	C4317	B-3
	C4318	C-3
*	C4319	B-2
	C4320	B-3
	C4321	B-3
	C4322	D-4
	C4323	C-3
	C4324	C-3
	C4325	B-3
	C4326	B-3
*	C4327	B-2
*	C4328	B-3
	C4401	A-1
	C4402	B-1
	C4403	B-1
	C4404	A-1
	C4405	B-1
*	C4406	B-1
	C4407	B-1
	C4408	B-1
	C4409	B-1
	C4410	A-1
*	C4411	B-1
	C4412	A-1
	C4413	B-1
	C4414	B-1
	C4415	A-1
	C4416	A-1
	C4417	B-2
	C4418	B-1
	C4419	A-2
	C4420	B-2
*	C4421	A-2
*	C4422	B-2
*	C4423	B-2
	C4424	A-2
	C4425	A-2
	C4426	B-2
	C4427	B-2
	C4428	B-2
	C4429	A-2
	C4430	A-2
	C4431	B-2
*	C4432	B-2
	C4433	B-2
*	C4434	B-2
	C4435	B-1
	C4436	B-1
	C4437	B-1
	C4438	B-1
*	C4501	D-5
*	C4502	D-5
*	C4503	D-5
*	C4504	D-5
*	C4505	D-5
*	C4506	D-5
*	C4507	E-5
*	C4508	D-5
*	C4509	E-5
*	C4510	D-5
*	C4511	E-5
*	C4512	D-5
*	C4513	E-5
*	C4514	D-5
*	C4515	D-5
*	C4516	E-5
*	C4517	D-6
*	C4518	D-6
*	C4519	D-6
*	C4520	D-6
*	C4521	C-6
*	C4522	D-6
*	C4523	C-6
*	C4524	A-5
*	C4525	A-6
*	C4526	C-6
*	C4527	D-7
*	C4528	D-6
	C4529	E-5
*	C4530	D-7
*	C4531	D-6
*	C4532	D-6
*	C4533	B-5
	C4534	E-6
	C4535	E-6
*	C4536	B-5
	C4538	E-5
*	C4539	B-5
*	C4540	C-5
*	C4541	B-5
	C4543	D-5
*	C4544	C-6
*	C4545	C-6
	C4546	D-5
	C4547	B-5
	C4548	B-5
	C4549	A-5
	C4550	B-5
	C4551	D-5
*	C4553	C-5
	C4554	D-5
	C4555	D-5
*	C4556	B-5
*	C4557	C-5
*	C4559	B-5
	C4601	A-6
	C4602	B-6
*	C4603	B-6
	C4604	C-6
*	C4605	B-6
*	C4606	B-6
*	C4607	E-3
*	C4608	E-3
	CN4001	E-3
*	CN4002	A-3
*	CN4003	B-1
	CN4004	B-4
	CN4201	E-4
	CN4601	B-6
	D4001	D-2
	D4003	D-2
	D4004	D-3
	D4005	D-3
	D4006	D-2
*	D4201	D-3
*	D4401	A-1
	D4501	E-6
	D4502	E-6
	D4503	E-6
*	D4504	C-6
	D4601	A-6
	D4602	A-6
	F4601	B-6
	F4602	B-6
	F4603	B-6
	F4604	B-6
	F4605	B-6
	F4606	B-6
*	FB4101	B-3
*	FB4201	E-4
*	FB4202	D-4
	FB4301	C-4
*	IC4101	C-3
*	IC4201	D-3
*	IC4202	D-4
	IC4301	C-3
	IC4401	B-2
*	IC4501	D-5
*	IC4505	C-5
*	L4101	B-3
*	L4102	C-3
*	L4201	E-4
	L4202	D-4
	L4301	C-4
*	L4401	B-2
	L4501	D-7
	L4502	D-6
	L4503	C-6
	L4504	D-7
	L4505	D-6
	L4506	D-6
*	L4507	B-5
*	L4508	B-5
*	L4509	B-5
*	L4510	B-5
*	L4511	C-6
*	L4512	C-6
	L4513	B-5
	L4514	B-5
	L4515	B-5
	L4516	B-5
	L4517	D-5
*	L4519	C-5
*	L4520	C-5
*	L4522	C-5
*	L4601	C-6
	LF4601	B-6
	Q4001	A-1
*	Q4003	A-1
*	Q4101	C-4
*	Q4102	C-4
*	Q4103	C-4
	Q4301	D-4
	Q4302	C-3
	Q4303	C-3
	Q4304	C-3
	Q4305	D-3
*	Q4306	B-3
*	Q4307	B-2
*	Q4501	D-6
*	Q4502	A-6
*	Q4503	D-7
*	Q4504	B-6
*	Q4505	D-6
*	Q4506	D-7
*	Q4507	B-5
*	Q4508	C-6
*	Q4509	D-7
*	Q4510	D-7
*	Q4511	D-7
*	Q4512	D-6
	Q4513	E-5
	Q4514	D-5
	Q4515	E-5
	Q4516	E-5
	Q4517	D-5
	Q4518	D-5
	Q4519	D-5
	Q4520	D-5
	Q4521	D-5
*	Q4601	B-6
*	Q4602	B-6
*	Q4603	B-6
*	Q4604	A-6
*	Q4605	E-3
*	Q4606	E-2
*	Q4607	E-2
*	Q4608	E-2
*	Q4609	E-2
*	Q4610	E-3
*	Q4611	E-4
	R4001	D-2
	R4002	D-2
	R4003	D-3
	R4004	D-3
	R4005	D-3
	R4009	A-1
*	R4010	A-1
	R4011	B-1
	R4012	B-1
	R4013	A-1
*	R4101	C-4
*	R4102	C-4
*	R4103	C-4
*	R4104	C-4
*	R4105	C-4
*	R4106	C-4
*	R4107	C-4
*	R4108	B-4
*	R4109	B-3
*	R4110	B-3
*	R4111	C-3
*	R4112	C-4
*	R4113	C-4
*	R4114	C-4
*	R4115	C-4
*	R4116	C-4
*	R4117	C-4
*	R4118	C-2
*	R4119	C-2
*	R4120	C-2
	R4121	C-3
*	R4201	E-2
*	R4202	E-3
*	R4203	D-3
*	R4204	D-2
*	R4205	D-3
*	R4206	D-3
*	R4207	D-3
*	R4208	D-3
	R4209	D-3
	R4210	D-3
*	R4211	D-3
*	R4212	D-2
*	R4213	D-2
*	R4214	D-3
*	R4215	D-3
*	R4216	D-3
*	R4217	D-3
*	R4218	D-3
*	R4219	D-2
*	R4220	D-2
	R4221	D-4
	R4222	D-4
	R4223	D-4
	R4224	D-4
	R4301	D-4
	R4302	B-3
	R4303	D-4
	R4304	C-3
	R4305	D-3
	R4306	B-3
	R4307	B-3
	R4308	B-3
	R4309	B-3
	R4310	C-3
	R4311	C-3
	R4316	C-3
	R4317	C-3
	R4318	D-3
	R4319	D-3
	R4401	B-1
	R4402	B-1
	R4403	B-1
	R4404	B-1
	R4405	B-1
	R4406	B-1
	R4407	A-1
*	R4408	B-2
*	R4409	A-2
	R4410	A-2
	R4411	B-2
	R4412	B-2
	R4413	A-2
*	R4414	B-2
	R4415	B-2
	R4416	A-2
	R4417	A-2
	R4418	B-2
	R4419	A-2
	R4420	B-2
	R4421	A-2
*	R4422	B-2
*	R4423	B-2
	R4424	B-2
	R4425	B-2
	R4426	B-1
	R4427	B-1
	R4428	B-1
	R4429	B-1
*	R4430	A-1
*	R4431	A-1
*	R4501	D-5
*	R4502	D-5
*	R4503	D-5
*	R4504	D-5
*	R4505	D-5
*	R4506	E-5
*	R4507	D-5
*	R4508	D-5
*	R4509	E-5
*	R4510	D-5
*	R4511	E-5
*	R4512	D-5
*	R4513	E-5
*	R4514	E-5
*	R4515	C-5
*	R4516	E-5
*	R4517	E-5
*	R4518	D-5
*	R4519	D-5
*	R4520	D-5
*	R4521	D-5
*	R4524	B-6
*	R4525	B-5
*	R4526	B-5
*	R4527	B-5
	R4528	E-5
	R4529	E-5
	R4530	E-6
	R4531	D-5
	R4532	E-5
	R4533	D-5
	R4534	E-5
	R4535	E-5
	R4536	E-5
	R4537	D-5
	R4538	D-5
	R4539	D-5
	R4540	D-5
	R4541	D-5
	R4542	E-5
	R4543	D-5
	R4544	D-5
	R4545	D-5
	R4546	D-5
*	R4549	E-5
	R4550	D-5
	R4551	D-5
	R4552	D-5
*	R4553	E-5
*	R4554	B-5
*	R4564	D-5
	R4601	A-6
	R4602	B-6
	R4603	B-6
*	R4604	B-6
*	R4605	B-6
*	R4606	A-6
*	R4607	B-6
*	R4608	A-6
*	R4609	A-6
*	R4610	E-2
*	R4611	E-2
*	R4612	E-3
*	R4613	E-3
*	R4614	E-3
*	R4615	E-3
*	R4616	E-3
*	R4617	E-3
*	R4618	E-3
	T4501	D-6

Mounted parts location of the VC-281 board is not shown.
Pages from 4-100 to 4-101 are not shown.

COVER

SECTION 5
ADJUSTMENTS

1. Adjusting items when replacing main parts and boards.

• Adjusting items when replacing main parts

When replacing main parts, adjust the items indicated by ● in the following table.

Note: When replacing the drum assy. or the mechanism deck, reset the data of page: 7, address: A7 to A9 to "00". (Refer to "Record of Use check" of "5-4. SERVICE MODE")

Adjustment Section	Adjustment	Replaced parts: Block replacement: Lens device	Mechanism deck **Note**	LCD block (LCD panel)	LCD block (Fluorescent tube)	EVF block (LCD panel)	Mechanism deck (Drum assy) **Note**	Mechanism deck (Capstan motor)	Parts replacement: JK-217 board (SE5301/5302 (YAW/PITCH sensor))	PD-161 board (IC5501 (RGB driver (LCD))	PD-161 board (IC5502 (Timing generator (LCD))	LB-077 board (IC6101,D6102 (Back light (EVF))	VA-117 board (IC4201 (RGB driver (EVF))	VA-117 board (IC4202 (Timing generator (EVF))	VA-117 board (IC4101 (Video IN/OUT)	CD-366 board (IC5101 (CCD imager)	CD-366 board (IC5102 (S/H)	VC-281 board (IC1501, X1501 (Timing generator)	VC-281 board (IC1502 (A/D conv.)	VC-281 board (IC2101 (DV signal process)	VC-281 board (IC1901 (EQ, A/D conv., PLL)	VC-281 board (IC1902 (REC/PB AMP)	VC-281 board (IC1801 (EVR)
Initialization of 8, A, B,C, D, E, F, 1B, 1E, 1F page data	Initialization of A, D page data																							
	Initialization of B, 1B page data																							
	Initialization of 8, C page data																							
	Initialization of E, F, 1E, 1F page data																							
Camera	54MHz origin oscillation adj.																	●					●	
	HALL adj.	●																						
	MR adj.	●																						
	Flange back adj.	●														●								
	MAX GAIN adj.															●	●		●					
	Color reproduction adj.															●	●		●					
	AWB & LV standard data input															●	●		●					
	Auto white balance adj.															●	●		●					
	Mechanical shutter adj.	●																						
	Black defective CCD adj.															●								
	Steady shot check								●															
Color EVF	VCO adj.												●	●										
	RGB AMP adj.												●											
	Contrast adj.												●								●			
	White balance adj.					●						●	●											
LCD	VCO adj.									●	●													
	RGB AMP adj.									●														
	Contrast adj.									●											●			
	COM AMP adj.									●														
	V COM adj.									●														
	White balance adj.			●	●					●														
Mechanism	Tape path adj.		●				●	●																
System control	Serial No. input																							
Video	Chroma BPF fo adj.														●									
	S VIDEO OUT Y level adj.														●					●				
	S VIDEO OUT chroma level adj.														●					●				
Servo, RF	CAP FG duty adj.		●					●																
	PLL fo & LPF fo adj.																							
	Switching position adj.		●				●																	
	AGC center level adj.		●				●															●	●	
	APC & AEQ adj.		●				●															●	●	
	PLL fo & LPF fo fine adj.		●				●															●	●	

Table. 5-1-1 (1).

• Adjusting items when replacing a board or EEPROM

When replacing a board or EFPROM, adjust the items indicated by ● in the following table.

Adjustment Section	Adjustment	Board replacement						EEPROM replacement			
		CD-366 board (COMPLETE)	JK-217 board (COMPLETE)	LB-077 board (COMPLETE)	PD-161 board (COMPLETE)	VA-117 board (COMPLETE)	VC-281 board (COMPLETE)	VC-281 board IC2502 (EEPROM)	VC-281 board IC2901 (EEPROM)	VC-281 board IC3002 (Flash memory)	Supporting RadarW
Initialization of 8, A, B,C, D, E, F, 1B, 1E, 1F page data	Initialization of A, D page data						●		●		
	Initialization of B, 1B page data						●		●		
	Initialization of 8, C page data						●	●			
	Initialization of E, F, 1E, 1F page data						●	●			
Camera	54MHz origin oscillation adj.						●	●			
	HALL adj.						●	●			●
	MR adj.						●	●			●
	Flange back adj.	●					●	●			●
	MAX GAIN adj.	●					●	●			●
	Color reproduction adj.	●					●	●			
	AWB & LV standard data input	●					●	●			●
	Auto white balance adj.	●					●	●			●
	Mechanical shutter adj.						●	●			●
	Black defective CCD adj.						●	●			●
	Steady shot check		●				●	●			●
Color EVF	VCO adj.					●	●	●			
	RGB AMP adj.					●	●	●			
	Contrast adj.					●	●	●			
	White balance adj.			●		●	●	●			
LCD	VCO adj.				●		●	●			
	RGB AMP adj.				●		●	●			
	Contrast adj.				●		●	●			
	COM AMP adj.				●		●	●			
	V COM adj.				●		●	●			
	White balance adj.				●		●	●			
Mechanism	Tape path adj.										
System control	Serial No. input						●	●			
Video	Chroma BPF fo adj.					●	●	●			
	S VIDEO OUT Y level adj.					●	●	●			
	S VIDEO OUT chroma level adj.					●	●	●			
Servo, RF	CAP FG duty adj.						●	●			●
	PLL fo & LPF fo adj.										
	Switching position adj.						●	●			●
	AGC center level adj.						●	●			●
	APC & AEQ adj.						●	●			●
	PLL fo & LPF fo fine adj.						●	●			●

Table. 5-1-1 (2).

5-1. CAMERA SECTION ADJUSTMENT

1-1. PREPARATIONS BEFORE ADJUSTMENT (CAMERA SECTION)

1-1-1. List of Service Tools

- Oscilloscope
- Color monitor
- Vectorscope
- Regulated power supply
- Digital voltmeter

Ref. No.	Name	Parts Code	Usage
J-1	Filter for color temperature correction (C14)	J-6080-058-A	Auto white balance adjustment/checkWhite balance adjustment/check
J-2	ND filter 1.0	J-6080-808-A	White balance check
	ND filter 0.4	J-6080-806-A	White balance check
	ND filter 0.1	J-6080-807-A	White balance check
J-3	Pattern box PTB-450	J-6082-200-A	
J-4	Color chart for pattern box	J-6020-250-A	
J-5	Adjustment remote commander (RM-95 upgraded) (Note)	J-6082-053-B	
J-6	Siemens star chart	J-6080-875-A	For checking the flange back
J-7	Clear chart for pattern box	J-6080-621-A	
J-8	CPC-8 jig	J-6082-388-A	For adjusting the video section For adjusting the color viewfinder For adjusting the LCD block
J-9	Extension cable (100P, 0.5mm)	J-6082-352-A	For extension between the VA-117 board (CN4002) and the VC-281 board (CN1007)
J-10	Mini pattern box	J-6082-353-B	For adjusting the flange back
J-11	Camera table	J-6082-384-A	For adjusting the flange back

Note: If the micro processor IC in the adjustment remote commander is not the new micro processor (UPD7503G-C56-12), the pages cannot be switched. In this case, replace with the new micro processor (8-759-148-35).

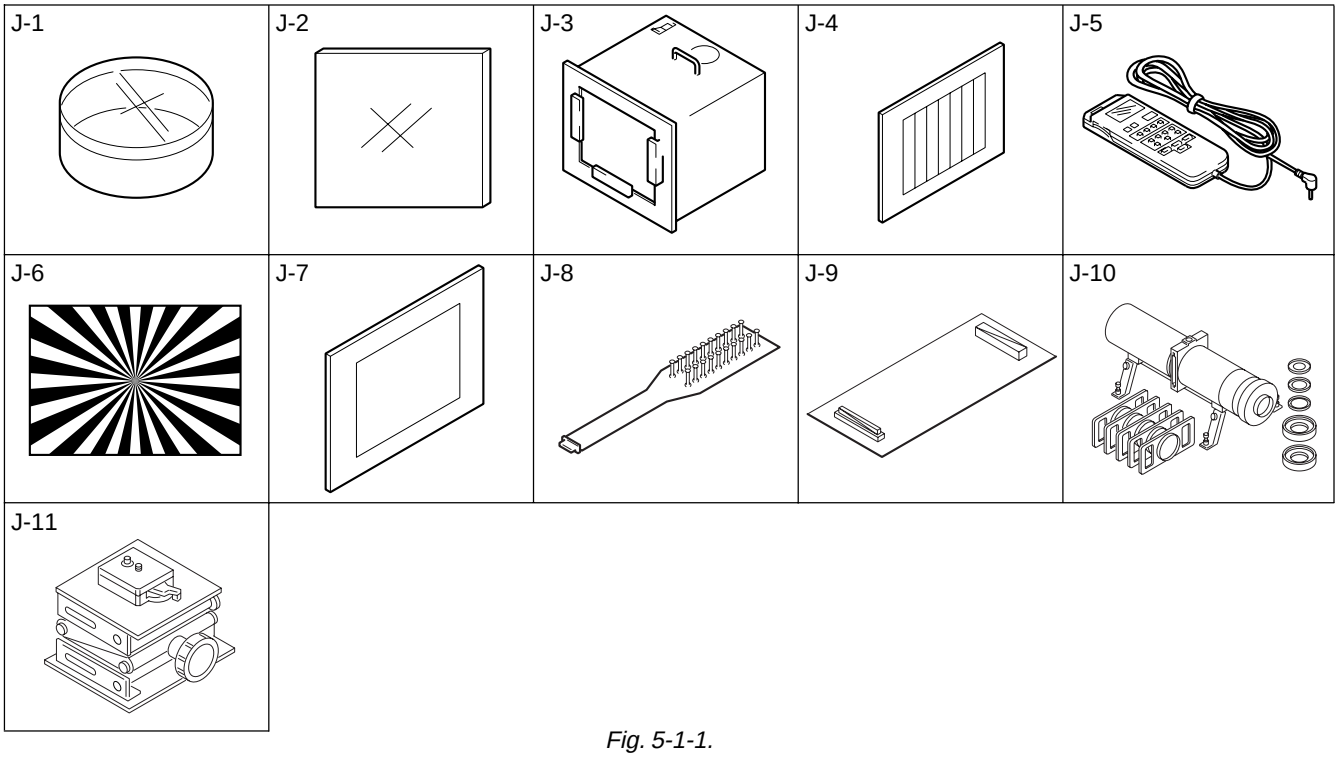


Fig. 5-1-1.

1-1-2. Preparations

Note 1: For details of how remove the cabinet and boards, refer to "2. DISASSEMBLY".

Note 2: When performing only the adjustments, the lens block and boards need not be disassembled.

Note 3: Before performing the adjustments, check the data of page: 0, address: 10 is "00". If not, set data: 00 to this address.

1) Connect the equipment for adjustments according to Fig. 5-1-3.

Note 4: As removing the cabinet (R) assembly (removing CN1005 of the VC-281 board) means removing the lithium 3V power supply (BT5201 on the CK-108 board), data such as date, time, user-set menus will be lost. After completing adjustments, reset these data. But the self-diagnosis data and the data on history of use (total drum rotation time etc.) will be kept even if the lithium 3V power supply is removed. (Refer to "5-4.Service Mode" for the self-diagnosis data and the data on history of use.)

Note 5: Setting the "Forced Camera Power ON" Mode
1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 10, set data: 01, and press the PAUSE button.

The above procedure will enable the camera power to be turned on with the control switch block (PS-CX2670) removed. After completing adjustments, be sure to exit the "Forced Camera Power ON Mode".

Note 6: Exiting the "Forced Camera Power ON" Mode
1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 10, set data: 00, and press the PAUSE button.
3) Select page: 0, address: 01, and set data: 00.

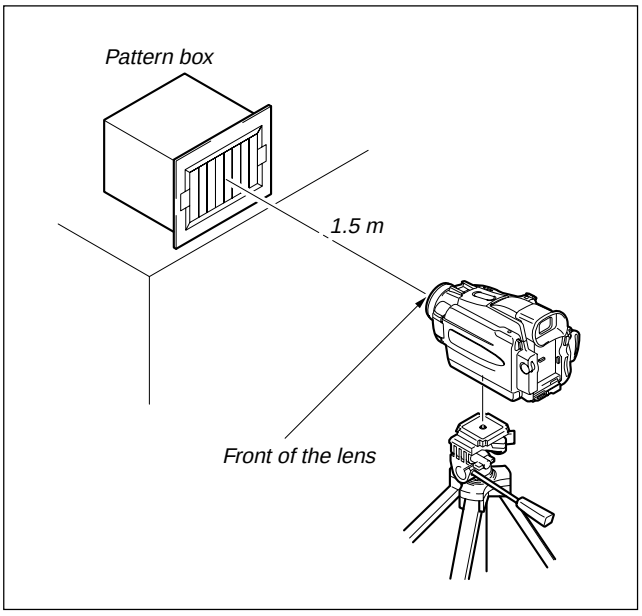


Fig. 5-1-2.

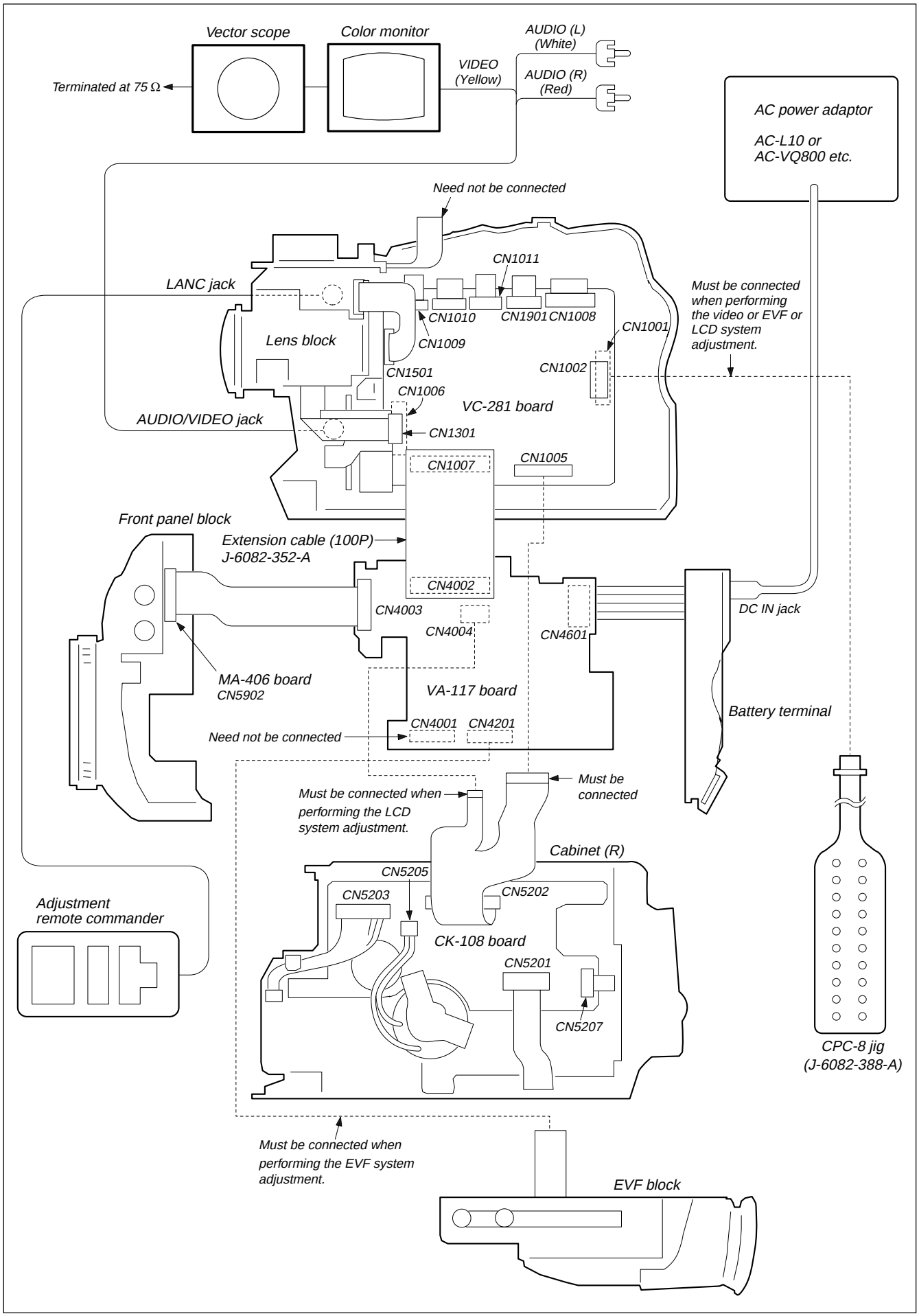

Vector scope
Color monitor
AUDIO (L)
(White)
VIDEO
(Yellow)
AUDIO (R)
(Red)
Terminated at 75 Ω
AC power adaptor
AC-L10 or
AC-VQ800 etc.
Need not be connected
CN1011
LANC jack
Must be connected when performing the video or EVF or LCD system adjustment.
CN1010
CN1901
CN1008
CN1001
Lens block
CN1009
CN1501
CN1002
CN1006
VC-281 board
AUDIO/VIDEO jack
CN1301
CN1007
CN1005
Front panel block
Extension cable (100P)
J-6082-352-A
CN4002
CN4003
CN4004
CN4601
DC IN jack
MA-406 board
CN5902
VA-117 board
Battery terminal
CN4001
CN4201
Need not be connected
Must be connected when performing the LCD system adjustment.
Must be connected
Cabinet (R)
CN5205
CN5203
CN5202
Adjustment
remote commander
CK-108 board
CN5201
CN5207
CPC-8 jig
(J-6082-388-A)
Must be connected when performing the EVF system adjustment.
EVF block

Fig. 5-1-3.

1-1-3. Precaution

1. Setting the Switch

Unless otherwise specified, set the switches as follows and perform adjustments without loading cassette.

1. POWER switch (PS-CX2670 block) ..... CAMERA
2. NIGHT SHOT switch (Lens block) ..... OFF
3. FOCUS switch (KP-CX2670 block) ..... MANUAL
4. BACK LIGHT switch (KP-CX2670 block) ..... OFF
5. COLOR SLOW S/ SUPER NS switch (JK-218 board) ... OFF
6. DEMO MODE (Menu setting) ..... OFF
7. STEADY SHOT (Menu setting) ..... OFF
8. DIGITAL ZOOM (Menu setting) ..... OFF
9. 16 : 9 WIDE (Menu setting) ..... OFF
10. PROGRAM AE (Menu setting) ..... AUTO
11. PICTURE EFFECT (Menu setting) ..... OFF
12. DIGITAL EFFECT (Menu setting) ..... OFF
13. WHITE BALANCE (Menu setting) ..... AUTO
14. AUTO SHUTTER (Menu setting) ..... OFF
15. DISPLAY (Menu setting) ..... V-OUT/LCD
16. DISPLAY (CK-108 board) ..... ON

2. Order of Adjustments

Basically carry out adjustments in the order given.

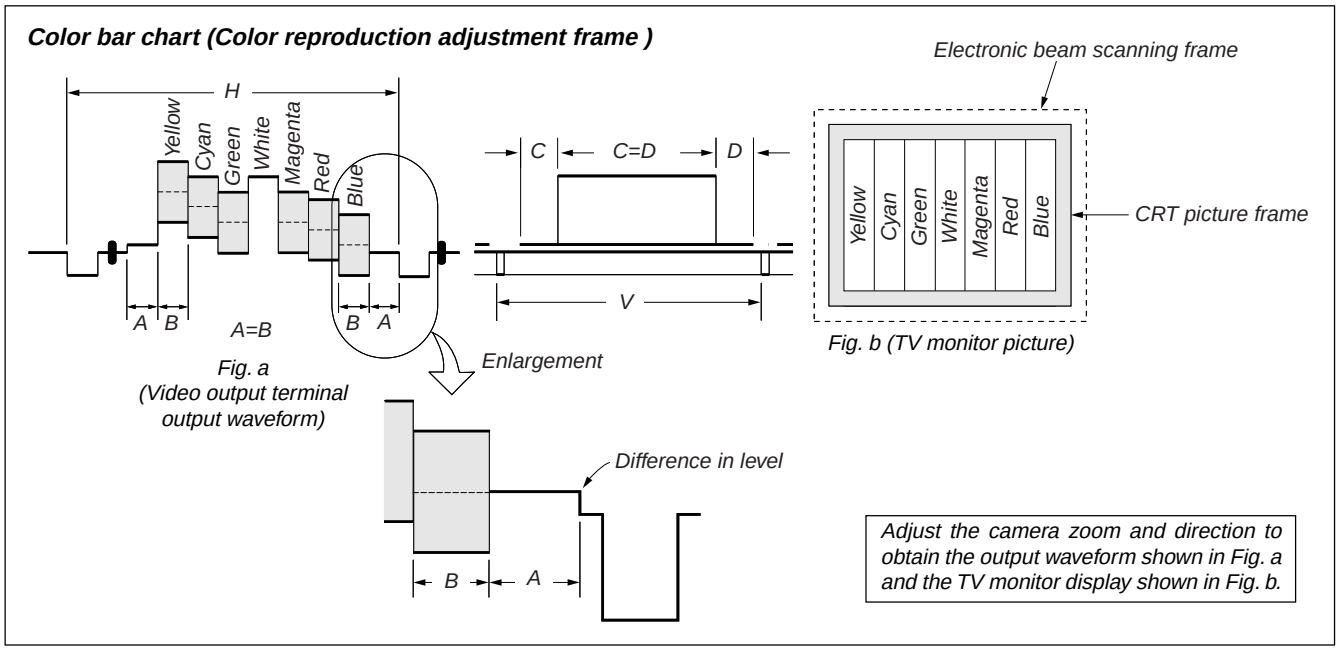


Fig. 5-1-4.

3. Subjects

1) Color bar chart (Color reproduction adjustment frame)
   When performing adjustments using the color bar chart, adjust the picture frame as shown in Fig. 5-1-4. (Color reproduction adjustment frame)
2) Clear chart (Color reproduction adjustment frame)
   Remove the color bar chart from the pattern box and insert a clear chart in its place. (Do not perform zoom operations during this time.)
3) Flange back adjustment chart
   Make the chart shown in Fig. 5-1-5 using A0 size (1189mm × 841mm) black and white vellum paper.

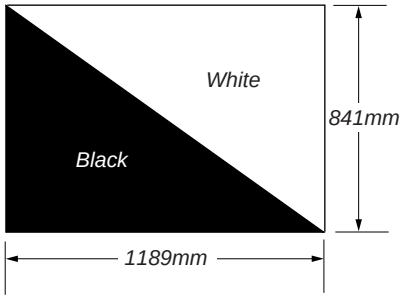


Fig. 5-1-5.

Note: Use matte vellum paper bigger than A0, and make sure the edges of the black and white paper joined together are not rough.

1-2. INITIALIZATION OF 8, A, B, C, D, E, F, 1B, 1E, 1F PAGE DATA

Note: When reading or writing the 1B, 1E or 1F page data, select page: 0, address: 10, and set data: 01, then select B, E or F page. The 1B, 1E or 1F page can be chosen by this data setting.
After reading or writing, reset the data of page: 0, address: 10 to "00".

[Connection of the power supply during the initialization of the data.]

1) Connect the regulated power supply and the digital voltmeter to the battery terminal as shown in Fig. 5-1-6.
2) Adjust the output voltage of the regulated power supply so that the digital voltmeter display is 6.0 ± 0.1Vdc.
3) Turn off the power supply.
4) Turn on the HOLD switch of the adjustment remote commander.
5) Turn on the power supply.
6) Perform the initialization of the data.

Note: This is normal though the following message is indicated on the LCD screen.
"FOR InfoLITHIUM BATTERY ONLY"

[Initialization Procedure]

1. Initialization of A, D page data
2. Initialization of B, 1B page data
3. Initialization of 8, C page data
4. Initialization of E, F, 1E, 1F page data

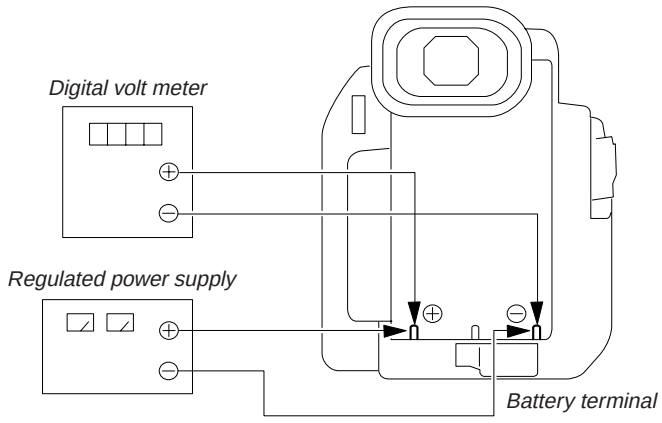


Fig. 5-1-6.

1-2-1. INITIALIZATION OF A, D PAGE DATA

Note: The data of page: 0, address: 10 must be "00".

1. Initializing the A, D Page Data

Note1: If the A, D page data has been initialized, the following adjustments need to be performed again.
1) Modification of A, D page data

Note2: The power supply voltage must be 6.0 ± 0.1Vdc.

Adjusting page	A
Adjusting Address	10 to FF
Adjusting page	D
Adjusting Address	10 to 67

Initializing Method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	0	10	00	Set the data.
3	7	03	84	Set the data.
4	7	00		Set the following data. 20 (Initializing A page) 22 (Initializing D page) 28 (Initializing A and D pages)
5	7	01		Set the following data, and press PAUSE button. 20 (Initializing A page) 22 (Initializing D page) 28 (Initializing A and D pages)
6	7	02		Check that the data changes to "01"
7				Perform "Modification of A, D Page Data".

2. Modification of A, D Page Data

If the A, D page data has been initialized, change the data of the "Fixed data-2" address shown in the following tables by manual input.

Modifying Method:

1) Before changing the data, select page: 0, address: 01, and set data: 01.
2) New data for changing are not shown in the tables because they are different in destination. When changing the data, copy the data built in the same model.
   Note: If copy the data built in the different model, the camcorder may not operate.
3) When changing the data, press the PAUSE button of the adjustment remote commander each time when setting new data to write the data in the non-volatile memory.

Processing after Completing Modification of A, D Page data

Order	Page	Address	Data	Procedure
1	2	00	29	Set the data.
2	2	01	29	Set the data, and press PAUSE button.

Note: If the following symptoms occur after completing of the "Modification of A, D page data", check that the data of the "Fixed data-2" addresses of A and D page are same as those of the same model of the same destination.
1) The self-diagnosis code "E:20:00" on the LCD screen is displayed.
2) The power is shut off so that unit cannot operate.

3. A Page Table

Note1: The data of page: 0, address: 10 must be"00".
Note2: Fixed data-1: Initialized data. (Refer to "1. Initializing the A, D Page Data".)
Fixed data-2: Modified data. (Refer to "2. Modification of A, D Page Data").

Address	Remark
00 to 0F	
10 to 17	Fixed data-1
18	Fixed data-2
19	Fixed data-1
1A	Fixed data-2
1B to 31	Fixed data-1
32	Fixed data-2
33	
34 to 59	Fixed data-1
5A	Fixed data-2
5B to 61	Fixed data-1
62	Fixed data-2
63	
64 to CF	Fixed data-1
D0	Fixed data-2
D1	
D2 to FF	Fixed data-1

Table. 5-1-2.

4. D Page Table

Note1: The data of page: 0, address: 10 must be “00”.
Note2: Fixed data-1: Initialized data. (Refer to “1. Initializing the A, D Page Data”.)
Fixed data-2: Modified data. (Refer to “2. Modification of A, D Page Data”).

Address	Initial value	Remark
00 to 0F		
10	00	Test mode
11 to 15		Fixed data-1
16		Fixed data-2
17 to 21		Fixed data-1
22		Fixed data-2 (Modified data. Copy the data built in the same model.)
23		
24		
25		
26		
27 to 29		Fixed data-1
2A		Fixed data-2
2B		
2C		Fixed data-1
2D		Fixed data-2
2E to 36		Fixed data-1
37		Fixed data-2
38		Fixed data-1
39		Fixed data-2
3A		
3B to 56		Fixed data-1
57		Fixed data-2
58		Fixed data-1
59		Fixed data-2 (Modified data. Copy the data built in the same model.)
5A		
5B		
5C		
5D		
5E		
5F to 67		Fixed data-1

Table. 5-1-3.

1-2-2. INITIALIZATION OF B, 1B PAGE DATA

Note: When reading or writing the B page data, select page: 0, address: 10, and set data: 00.
When reading or writing the 1B page data, select page: 0, address: 10, and set data: 01, then select B page. The 1B page can be chosen by this data setting.
After reading or writing, reset the data of page: 0, address: 10 to "00".

1. Initializing the B, 1B Page Data

Note1: If "Initializing the B, 1B Page Data" is performed, all data of the B page and 1B page will be initialized. (It is impossible to initialize a single page.)

Note2: If the B, 1B page data has been initialized, the following adjustments need to be performed again.
1) Modification of B, 1B page data

Note3: The power supply voltage must be 6.0 ± 0.1Vdc.

Adjusting page	B
Adjusting Address	00 to FF
Adjusting page	1B
Adjusting Address	00 to FF

Initializing Method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	0	10	00	Set the data.
3	5	02	FF	Set the data.
4	5	01	F3	Set the data, and press PAUSE button.
5	5	00	01	Set the data, and press PAUSE button.
6	5	02		Check that the data changes to "00".
7				Perform "Modification of B, 1B Page Data".

2. Modification of B, 1B Page Data

If the B, 1B page data has been initialized, change the data of the "Fixed data-2" address shown in the following tables by manual input.

Modifying Method:

1) Before changing the data, select page: 0, address: 01, and set data: 01.
2) When changing the B page data, select page: 0, address: 10, and set data: 00.
3) When changing the 1B page data, select page: 0, address: 10, and set data: 01.
   After completing the modification of 1B page data, reset the data of this address to "00".
4) New data for changing are not shown in the tables because they are different in destination. When changing the data, copy the data built in the same model.
   Note: If copy the data built in the different model, the camcorder may not operate.
5) When changing the data, press the PAUSE button of the adjustment remote commander each time when setting new data to write the data in the non-volatile memory.

Processing after Completing Modification of B, 1B Page data:

Order	Page	Address	Data	Procedure
1	0	10	00	Set the data.
2	2	00	29	Set the data.
3	2	01	29	Set the data, and press PAUSE button.

3. B Page Table

Note1: The data of page: 0, address: 10 must be "00".
Note2: Fixed data-1: Initialized data. (Refer to "1. Initializing the B, 1B Page Data".)
Fixed data-2: Modified data. (Refer to "2. Modification of B, 1B Page Data").

Address	Remark
00 to FF	Fixed data-1

Table. 5-1-4.

4. 1B Page Table

Note1: When reading or writing the 1B page data, select page: 0, address: 10, and set data: 01, then select B page. The 1B page can be chosen by this data setting.
After reading or writing, reset the data of page: 0, address: 10 to "00".

Note2: Fixed data-1: Initialized data. (Refer to "1. Initializing the B, 1B Page Data".)
Fixed data-2: Modified data. (Refer to "2. Modification of B, 1B Page Data").

Address	Remark
00 to FF	Fixed data-1

Table. 5-1-5.

1-2-3. INITIALIZATION OF 8, C PAGE DATA

Note: The data of page: 0, address: 10 must be "00".

1. Initializing the 8, C Page Data

Note1: If "Initializing the 8, C Page Data" is performed, all data of the 8 page and C page will be initialized. (It is impossible to initialize a single page.)

Note2: If the 8, C page data has been initialized, following adjustments need to be performed again.
1) Modification of 8, C page data
2) Serial No. input
3) Viewfinder system adjustments
4) LCD system adjustments
5) Servo and RF system adjustments
6) Video system adjustments

Note3: The power supply voltage must be 6.0 ± 0.1Vdc.

Adjusting page	8
Adjusting Address	00 to A3
Adjusting page	C
Adjusting Address	10 to FF

Initializing Method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	0	10	00	Set the data.
3	3	81		Check that the data is "00".
4	3	80	0C	Set the data, and press PAUSE button.
5	3	80		Check that the data changes to "1C".
6				Perform "Modification of 8, C Page Data".

2. Modification of 8, C Page Data

If the 8, C page data has been initialized, change the data of the "Fixed data-2" address shown in the following table by manual input.

Modifying Method:

1) Before changing the data, select page: 0, address: 01, and set data: 01.
2) New data for changing are not shown in the tables because they are different in destination. When changing the data, copy the data built in the same model.
   Note: If copy the data built in the different model, the camcorder may not operate.
3) When changing the data, press the PAUSE button of the adjustment remote commander each time when setting new data to write the data in the non-volatile memory.
4) Check that the data of adjustment addresses is the initial value. If not, change the data to the initial value.

Processing after Completing Modification of 8, C Page data

Order	Page	Address	Data	Procedure
1	2	00	29	Set the data.
2	2	01	29	Set the data, and press PAUSE button.

3. 8 Page Table

Note1: The data of page: 0, address: 10 must be "00".
Note2: Fixed data-1: Initialized data. (Refer to "1. Initializing the 8, C Page Data".)
Fixed data-2: Modified data. (Refer to "2. Modification of 8, C Page Data").

Address	Initial value	Remark
00 to 18		Fixed data-1
19		Fixed data-2
1A to 28		Fixed data-1
29		Fixed data-2
2A to 2E		Fixed data-1
2F		Fixed data-2
30 to 3A		Fixed data-1
3B		Fixed data-2
3C to 49		Fixed data-1
4A		Fixed data-2
4B to 51		Fixed data-1
52		Fixed data-2
53 to 59		Fixed data-1
5A		Fixed data-2
5B to 79		Fixed data-1
7A		Fixed data-2 (Modified data. Copy the data built in the same model.)
7B		
7C		
7D		
7E		
7F		
80		
81		
82		
83		
84 to 89		Fixed data-1
8A		Fixed data-2
8B		Fixed data-1
8C	08	Serial No. input
8D	00	
8E	46	
8F	01	
90	02	
91	00	
92	00	
93	00	
94 to A3		Fixed data-1

Table. 5-1-6.

4. C Page Table

Note1: The data of page: 0, address: 10 must be “00”.

Note2: Fixed data-1: Initialized data. (Refer to “1. Initializing the 8, C Page Data”.)
Fixed data-2: Modified data. (Refer to “2. Modification of 8, C Page Data”).

Address	Initial value	Remark
00 to 0F		
10	EE	Switching position adj.
11	00	
12	00	
13	00	
14 to 15		Fixed data-1
16	E0	CAP FG duty adj.
17		Fixed data-1
18	2A	AEQ adj.
19	2A	
1A		Fixed data-1
1B	32	AEQ adj.
1C	32	
1D		Fixed data-1
1E	25	AGC center level adj.
1F	3E	PLL fo adj.
20	3E	
21	DC	APC adj.
22	99	LPF fo adj.
23 to 24		Fixed data-1
25	88	S VIDEO out Y level adj.
26	E3	S VIDEO out Cr level adj.
27	A1	S VIDEO out Cb level adj.
28	04	Chroma BPF fo adj.
29	20	PLL fo adj.
2A to 2B		Fixed data-1
2C	03	APC adj.
2D to 4E		Fixed data-1
4F		Fixed data-2
50		
51	87	VCO adj. (EVF)
52	6F	
53		Fixed data-2
54	97	RGB AMP adj. (EVF)
55		Fixed data-1
56	80	White balance adj. (EVF)
57	80	
58	37	Contrast adj. (EVF)
59 to 5E		Fixed data-1
5F		Fixed data-2
60		
61	80	VCO adj. (LCD)
62	70	
63	80	V COM adj. (LCD)
64	30	RGB AMP adj. (LCD)
65		Fixed data-1
66	C0	COM AMP adj. (LCD)
67	80	White balance adj. (LCD)
68	80	
69	50	Contrast adj. (LCD)
6A		Fixed data-1
6B		Fixed data-2
6C		
6D to 71		Fixed data-1
72		Fixed data-2
73 to 75		Fixed data-1
76		Fixed data-2
77 to 79		Fixed data-1
7A		Fixed data-2
7B to 80		Fixed data-1
81		Fixed data-2
82		
83 to 88		Fixed data-1
89		Fixed data-2
8A		
8B		Fixed data-1
8C		Fixed data-2
8D to A9		Fixed data-1
AA		Fixed data-2
AB		Fixed data-1
AC		Fixed data-2 (Modified data. Copy the data built in the same model.)
AD		
AE		
AF		
B0 to C0		Fixed data-1
C1		Fixed data-2
C2		Fixed data-1
C3		Fixed data-2 (Modified data. Copy the data built in the same model.)
C4		
C5		
C6		
C7 to C8		Fixed data-1
C9		Fixed data-2 (Modified data. Copy the data built in the same model.)
CA		
CB		
CC		
CD		
CE		
CF to D0		Fixed data-1
D1		Fixed data-2
D2		Fixed data-1
D3		Fixed data-2
D4		Fixed data-1
D5		Fixed data-2
D6		
D7		Fixed data-1
D8		Fixed data-2 (Modified data. Copy the data built in the same model.)
D9		
DA		
DB		
DC		
DD		
DE		
DF		
E0		
E1		Fixed data-1

C Page

Address	Initial value	Remark
E2		Fixed data-2
E3		
E4 to E7		Fixed data-1
E8		Fixed data-2 (Modified data. Copy the data built in the same model.)
E9		
EA		
EB		
EC		
ED		
EE		
EF		
F0 to F1		Fixed data-1
F2		Fixed data-2
F3		Fixed data-1
F4	00	Emergency memory address
F5	00	
F6	00	
F7	00	
F8	00	
F9	00	
FA	00	
FB	00	
FC	00	
FD	00	
FE	00	
FF	00	

Table. 5-1-7.

1-2-4. INITIALIZATION OF E, F, 1E, 1F PAGE DATA

Note: When reading or writing the E, F page data, select page: 0, address: 10, and set data: 00.
When reading or writing the 1E or 1F page data, select page: 0, address: 10, and set data: 01, then select E or F page. The 1E or 1F page can be chosen by this data setting.
After reading or writing, reset the data of page: 0, address: 10 to "00".

1. Initializing the E, F, 1E, 1F Page Data

Note1: If "Initializing the E, F, 1E, 1F Page Data" is performed, all data of the E page, F page, 1E page and 1F page will be initialized. (It is impossible to initialize a single page.)

Note2: If the E, F, 1E, 1F page data has been initialized, following adjustments need to be performed again.
1) Modification of E, F, 1E, 1F page data
2) 54MHz origin osc. adjustment
3) Camera system adjustments

Note3: The power supply voltage must be 6.0 ± 0.1Vdc.

Adjusting page	E
Adjusting Address	00 to FF
Adjusting page	F
Adjusting Address	10 to FF
Adjusting page	1E
Adjusting Address	00 to BF
Adjusting page	1F
Adjusting Address	00 to FF

Initializing Method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	0	10	00	Set the data.
3	6	01	2F	Set the data, and press PAUSE button.
4	6	03	01	Set the data, and press PAUSE button.
5	6	02		Check that the data changes to "01".
6				Perform "Modification of E, F, 1E, 1F Page Data".

2. Modification of E, F, 1E, 1F Page Data

If the E, F, 1E, 1F page data has been initialized, change the data of the "Fixed data-2" address shown in the following table by manual input.

Modifying Method:

1) Before changing the data, select page: 0, address: 01, and set data: 01.
2) When changing the E, F page data, select page: 0, address: 10, and set data: 00.
3) When changing the 1E, 1F page data, select page: 0, address: 10, and set data: 01.
   After completing the modification of 1E, 1F page data, reset the data of this address to "00".
4) New data for changing are not shown in the tables because they are different in destination. When changing the data, copy the data built in the same model.
   Note: If copy the data built in the different model, the camcorder may not operate.
5) When changing the data, press the PAUSE button of the adjustment remote commander each time when setting new data to write the data in the non-volatile memory.
6) Check that the data of adjustment addresses is the initial value. If not, change the data to the initial value.

Processing after Completing Modification of E, F, 1E, 1F Page data

Order	Page	Address	Data	Procedure
1	0	10	00	Set the data.
2	2	00	29	Set the data.
3	2	01	29	Set the data, and press PAUSE button.
4				Perform "54MHz Origin Osc. Adjustment" of the camera system adjustment.

3. E Page Table

Note1: The data of page: 0, address: 10 must be “00”.
Note2: Fixed data-1: Initialized data. (Refer to “1. Initializing the E, F, 1E, 1F Page Data”.)
Fixed data-2: Modified data. (Refer to “2. Modification of E, F, 1E, 1F Page Data”).

Address	Remark
00 to 07	Fixed data-1
08	Fixed data-2
09	(Modified data. Copy the data
0A	built in the same model.)
0B	
0C to 0D	Fixed data-1
0E	Fixed data-2
0F to 1A	Fixed data-1
1B	Fixed data-2
1C	Fixed data-1
1D	Fixed data-2
1E to 1F	Fixed data-1
20	Fixed data-2
21	(Modified data. Copy the data
22	built in the same model.)
23	
24	Fixed data-1
25	Fixed data-2
26	Fixed data-1
27	Fixed data-2
28 to 37	Fixed data-1
38	Fixed data-2
39	
3A to 3B	Fixed data-1
3C	Fixed data-2
3D	(Modified data. Copy the data
3E	built in the same model.)
3F	
40 to 41	Fixed data-1
42	Fixed data-2
43 to 45	Fixed data-1
46	Fixed data-2
47	
48 to 53	Fixed data-1
54	Fixed data-2
55	
56 to 65	Fixed data-1
66	Fixed data-2
67	(Modified data. Copy the data
68	built in the same model.)
69	
6A to 6E	Fixed data-1
6F	Fixed data-2
70	
71 to 85	Fixed data-1
86	Fixed data-2
87 to DF	Fixed data-1
E0	Fixed data-2
E1	(Modified data. Copy the data
E2	built in the same model.)
E3	
E4	Fixed data-2
E5	(Modified data. Copy the data
E6	built in the same model.)
E7	
E8	
E9	
EA	
EB to FF	Fixed data-1

Table. 5-1-9.

4. F Page Table

Note1: The data of page: 0, address: 10 must be "00".
Note2: Fixed data-1: Initialized data. (Refer to "1. Initializing the E, F, 1E, 1F Page Data".)
Fixed data-2: Modified data. (Refer to "2. Modification of E, F, 1E, 1F Page Data").

Address	Initial value	Remark
00 to FF		
10	40	54MHz origin osc. adj.
11 to 12		Fixed data-1
13	28	HALL adj.
14	70	
15	28	
16	40	
17	80	
18	D8	
19	A0	MAX GAIN adj.
1A	80	AWB & LV standard data input
1B	7A	
1C to 2F		Fixed data-1
30	4D	AWB & LV standard data input
31	3E	
32	64	
33	59	
34	96	Auto white balance adj.
35	7A	
36		Fixed data-1
37	2C	Color reproduction adj.
38		Fixed data-1
39	26	Color reproduction adj.
3A to 3F		Fixed data-1
40	01	Color reproduction adj.
41	E8	
42 to 44		Fixed data-1
45		Fixed data-2 (Modified data. Copy the data built in the same model.)
46		
47		
48	3F	Flange back adj.
49	10	
4A	39	
4B	C2	
4C	1E	
4D	2E	
4E	00	
4F	00	
50	00	
51	00	
52	6E	
53	19	
54	00	
55	19	
56	00	
57	00	
58	00	
59		Fixed data-1
5A	80	MR adj.
5B	80	
5C	80	MR adj.
5D	80	
5E	40	
5F	C0	
60	40	
61	C0	
62	40	
63	C0	
64	40	
65	C0	
6D to 71		Fixed data-1
72		Fixed data-2
73 to 75		Fixed data-1
76	40	Mechanical shutter adj.
77	00	
78	34	
79	00	
7A	30	
7B	00	
7C	2A	
7D	00	
7E	28	
7F	00	
80	40	
81	3A	
82	31	
83	31	
84	35	
85	1E	
86	80	
87	80	
88	80	
89	80	
8A	80	
8B	80	
8C to 97		Fixed data-1
98		Fixed data-2 (Modified data. Copy the data built in the same model.)
99		
9A		
9B		
9C		
9D to A7		Fixed data-1
A8		Fixed data-2
A9 to CF		Fixed data-1
D0		Fixed data-2
D1 to D6		Fixed data-1
D7		Fixed data-2
D8 to D9		Fixed data-1
DA		Fixed data-2
DB		
DC to DD		Fixed data-1
DE		Fixed data-2(Modified data. Copy the data built in the same model.)
DF		
E0 to E6		Fixed data-1
E7		Fixed data-2

F Page

Address	Initial value	Remark
E8 to F4		Fixed data-1
F5		Fixed data-2
F6		Fixed data-1
F7		Fixed data-2
F8		(Modified data. Copy the data
F9		built in the same model.)
FA to FD		Fixed data-1
FE		Fixed data-2
FF		Fixed data-1

Table. 5-1-10.

5. 1E Page Table

Note1: When reading or writing the 1E page data, select page: 0, address: 10, and set data: 01, then select E page. The 1E page can be chosen by this data setting.
After reading or writing, reset the data of page: 0, address: 10 to "00".

Note2: Fixed data-1: Initialized data. (Refer to "1. Initializing the E, F, 1E, 1F Page Data".)
Fixed data-2: Modified data. (Refer to "2. Modification of E, F, 1E, 1F Page Data").

Address	Initial value	Remark
00 to 0F		Fixed data-1
10		Fixed data-2
11 to 1F		Fixed data-1
20	00	Black defective CCD adj.
21	00	
22	00	
23	00	
24	00	
25	00	
26	00	
27	00	
28	00	
29	00	
2A	00	
2B	00	
2C	00	
2D	00	
2E	00	
2F	00	
30		Fixed data-2
31		(Modified data. Copy the data
32		built in the same model.)
33		
34		
35 to 37		Fixed data-1
38		Fixed data-2
39 to 51		Fixed data-1
52		Fixed data-2
53		(Modified data. Copy the data
54		built in the same model.)
55		Fixed data-1
56		Fixed data-2
57 to 71		Fixed data-1
72		Fixed data-2
73		
74 to 80		Fixed data-1
81		Fixed data-2
82		
83 to 84		Fixed data-1
85		Fixed data-2
86		
87 to BF		Fixed data-1

Table. 5-1-11.

6. 1F Page Table

Note1: When reading or writing the 1F page data, select page: 0, address: 10, and set data: 01, then select F page. The 1F page can be chosen by this data setting.
After reading or writing, reset the data of page: 0, address: 10 to "00".

Note2: Fixed data-1: Initialized data. (Refer to "1. Initializing the E, F, 1E, 1F Page Data".)
Fixed data-2: Modified data. (Refer to "2. Modification of E, F, 1E, 1F Page Data").

Address	Remark
00 to 38	Fixed data-1
39	Fixed data-2
3A to 44	Fixed data-1
45	Fixed data-2
46	
47 to 4F	Fixed data-1
50	Fixed data-2 (Modified data. Copy the data built in the same model.)
51	
52	
53	
54	
55 to 5A	Fixed data-1
5B	Fixed data-2
5C	Fixed data-1
5D	Fixed data-2
5E to 6F	Fixed data-1
70	Fixed data-2
71	
72 to A1	Fixed data-1
A2	Fixed data-2
A3 to AB	Fixed data-1
AC	Fixed data-2
AD	
AE to B0	Fixed data-1
B1	Fixed data-2
B2	
B3	Fixed data-1
B4	Fixed data-2
B5 to B8	Fixed data-1
B9	Fixed data-2
BA	
BB to C9	Fixed data-1
CA	Fixed data-2 (Modified data. Copy the data built in the same model.)
CB	
CC	
CD	Fixed data-1
CE	Fixed data-2
CF to D1	Fixed data-1
D2	Fixed data-2
D3	
D4 to FF	Fixed data-1

Table. 5-1-12.

1-3. CAMERA SYSTEM ADJUSTMENTS

Before perform the camera system adjustments (except for "54MHz Origin Oscillation Adjustment"), check that the specified values of "VIDEO SYSTEM ADJUSTMENTS" are satisfied.
And check that the data of page: 0, address: 10 is "00". If not, set data: 00 to this address.

1. 54MHz Origin Oscillation Adjustment (VC-281 board)

Set the frequency of the clock for synchronization.
If deviated, the synchronization will be disrupted and the color will become inconsistent.

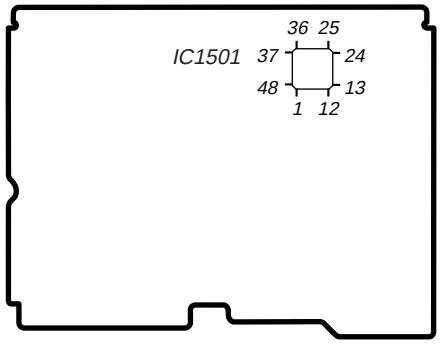
Subject	Not required
Measurement Point	Pin ㉕ of IC1501 Or Pin ㉟ of IC2401
Measuring Instrument	Frequency counter
Adjustment Page	F
Adjustment Address	10
Specified Value	Pin ㉕ of IC1501 f=27000000 ± 136Hz Pin ㉟ of IC2401 f=13500000 ± 68Hz

Note1: The data of page: 0, address: 10 must be "00".
Note2: When open the VA-117 board, use the following extension cable between the VC-281 board CN1007 and VA-117 board CN4002.
J-6082-352-A (100P, 0.5mm)

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	F	10		Change the data and set the frequency (f) to the specified value.
3	F	10		Press PAUSE button.
4	0	01	00	Set the data.

VC-281 board (SIDE B)



VC-281 board (SIDE A)

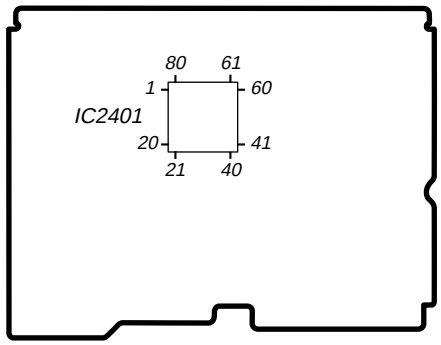


Fig. 5-1-7.

2. HALL Adjustment RadarW

For detecting the position of the lens iris and ND filter, adjust AMP gain and offset.

Subject	Not required
Measurement Point	Display data of page 1 (Note1)
Measuring Instrument	Adjustment remote commander
Adjustment Page	F
Adjustment Address	13 to 18
Specified Value 1	D5 to DB
Specified Value 2	25 to 2B
Specified Value 3	D5 to DB
Specified Value 4	25 to 2B

Note1: Displayed data of page 1 of the adjustment remote commander.

1 : XX : XX
- XX (right): IRIS display data
- XX (left): ND display data

Note2: The data of page: 0, address: 10 must be “00”.

Switch setting:

POWER ..... CAMERA

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	6	94	00	Set the data.
3	6	95	00	Set the data.
4	6	01	6D	Set the data, and press PAUSE button.
5	6	02		Check that the data changes to “01”. (Note3)
6	6	01	00	Set the data, and press PAUSE button.

Note3: The adjustment data will be automatically input to page: F, address: 13 to 18.

Checking method:

Order	Page	Address	Data	Procedure
1	0	03	03	Set the data.
2	6	01	03	Set the data, and press PAUSE button.
3	1			Check that the IRIS display data (Note1) satisfies the specified value 1.
4	6	01	01	Set the data, and press PAUSE button.
5	1			Check that the IRIS display data (Note1) satisfies the specified value.2.
6	6	01	69	Set the data, and press PAUSE button.
7	1			Check that the ND display data (Note1) satisfies the specified value 3.
8	6	01	6B	Set the data, and press PAUSE button.
9	1			Check that the ND display data (Note1) satisfies the specified value.4.

Processing after Completing Adjustments:

Order	Page	Address	Data	Procedure
1	6	94	00	Set the data.
2	6	95	00	Set the data.
3	6	01	00	Set the data, and press PAUSE button.
4	0	03	00	Set the data.
5	0	01	00	Set the data.

3. MR Adjustment RadarW

The MR (Magnet resistor) adjustment of the inner focus lens is carried out automatically. In whichever case, the focus will be deviated during auto focusing/manual focusing.

Subject	Not required
Measurement Point	Adjustment remote commander
Measuring Instrument	
Adjustment Page	F
Adjustment Address	58, 5A to 65
Specified Value1	40 to C0
Specified Value2	03 to 78
Specified Value3	88 to F8

Note1: Make the lens horizontal and perform this adjustment.
Note2: Perform this adjustment before “Flange Back Adjustment”.
Note3: The data of page: 0, address: 10 must be “00”.
Note4: Check that the data of page: 6, address: 02 is “00”. If not, to page: 6, address: 01, set data: 00, and press the PAUSE button.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	6	01	BD	Set the data, and press PAUSE button.
3	6	02		Check that the data changes to “01”. (Note5)
4	F	5A		Check that the data satisfies the specified value 1.
5	F	5B		Check that the data satisfies the specified value 1.
6	F	5C		Check that the data satisfies the specified value 1.
7	F	5D		Check that the data satisfies the specified value 1.
8	F	5E		Check that the data satisfies the specified value 2.
9	F	5F		Check that the data satisfies the specified value 3.
10	F	60		Check that the data satisfies the specified value 2.
11	F	61		Check that the data satisfies the specified value 3.
12	F	62		Check that the data satisfies the specified value 2.
13	F	63		Check that the data satisfies the specified value 3.
14	F	64		Check that the data satisfies the specified value 2.
15	F	65		Check that the data satisfies the specified value 3.

Note5: The adjustment data will be automatically input to page: F, address: 58, 5A to 65.

Processing after Completing Adjustments:

Order	Page	Address	Data	Procedure
1	6	01	00	Set the data, and press PAUSE button.
2	0	01	00	Set the data.

4. Flange Back Adjustment (Using Minipattern Box)

The inner focus lens flange back adjustment is carried out automatically. In whichever case, the focus will be deviated during auto focusing/manual focusing.

Subject	Siemens star chart with ND filter for the minipattern box (Note1)
Measurement Point	Adjustment remote commander
Measuring Instrument	
Adjustment Page	F
Adjustment Address	48 to 58
Specified Value	Data of page: F, address: 57 is “00” to “0B”.

Note1: Dark Siemens star chart.
Note2: This adjustment should be carried out upon completion of the following adjustments.
“HALL Adjustment”, “MR Adjustment”
Note3: Make the lens horizontal and perform this adjustment.
Note4: The data of page: 0, address: 10 must be “00”.
Note5: Check that the data of page: 6, address: 02 is “00”. If not, to page: 6, address: 01, set data: 00, and press the PAUSE button.

Switch setting:

1) POWER ..... CAMERA
2) NIGHT SHOT ..... OFF

Preparations:

1) The minipattern box is installed as shown in the following figure.
Note: The attachment lenses are not used.
2) Install the minipattern box so that the distance between it and the front of the lens of the camcorder is less than 3cm.
3) Make the height of the minipattern box and the camcorder equal.
4) Check that the output voltage of the regulated power supply is the specified voltage.
5) Check that at both the zoom lens TELE end and WIDE end, the center of the Siemens star chart and center of the exposure screen coincide.

Specified voltage: The specified voltage varies according to the minipattern box, so adjust the power supply output voltage to the specified voltage written on the sheet which is supplied with the minipattern box.

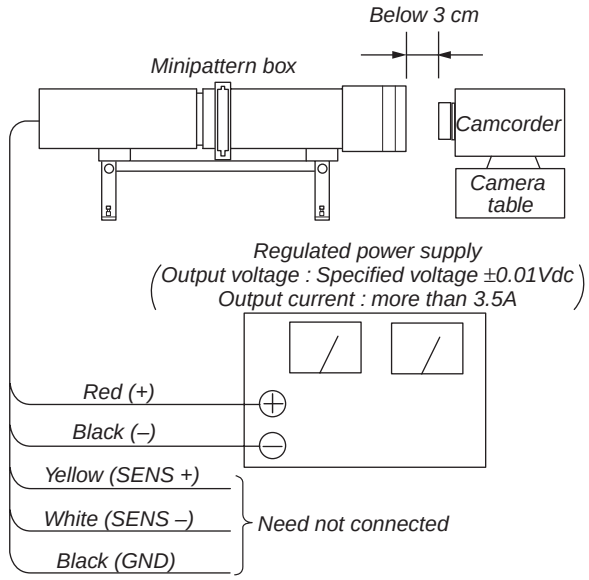


Fig. 5-1-8.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	6	01	13	Set the data, and press PAUSE button. (Note3)
3	6	01	27	Set the data, and press PAUSE button.
4	6	02		Check that the data changes to “01”. (Note6)
5	F	57		Check the data is “00” to “0B”.

Note6: The adjustment data will be automatically input to page: F, address: 48 to 58.

Processing after Completing Adjustments:

Order	Page	Address	Data	Procedure
1	6	01	00	Set the data, and press PAUSE button.
2	0	01	00	Set the data.
3				Turn off the power and turn on again.
4				Perform “Flange Back Check”.

5. Flange Back Adjustment (Using Flange Back Adjustment Chart and Subject More Than 500m Away)

The inner focus lens flange back adjustment is carried out automatically. In whichever case, the focus will be deviated during auto focusing/manual focusing.

5-1. Flange Back Adjustment (1) RadarW

Subject	Flange back adjustment chart (2.0 m from the front of the protection glass) (Luminance: 350 ± 50 lux)
Measurement Point	Adjustment remote commander
Measuring Instrument	
Adjustment Page	F
Adjustment Address	48 to 58
Specified Value	Data of page: F, address: 57 is “00” to “0B”.

Note1: This adjustment should be carried out upon completion of the following adjustments.
“HALL Adjustment”, “MR Adjustment”
Note2: Make the lens horizontal and perform this adjustment.
Note3: The data of page: 0, address: 10 must be “00”.
Note4: Check that the data of page: 6, address: 02 is “00”. If not, to page: 6, address: 01, set data: 00, and press the PAUSE button.

Switch setting:

1) POWER ..... CAMERA
2) NIGHT SHOT ..... OFF

Preparations:

1) Check that at both the zoom lens TELE end and WIDE end, the center of the chart for the flange back adjustment and center of the exposure screen coincide.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	6	01	13	Set the data, and press PAUSE button. (Note2)
3	6	01	15	Set the data, and press PAUSE button.
4	6	02		Check that the data changes to “01”. (Note5)
5	F	57		Check the data is “00” to “0B”.

Note5: The adjustment data will be automatically input to page: F, address: 48 to 58.

Processing after Completing Adjustments:

Order	Page	Address	Data	Procedure
1	6	01	00	Set the data, and press PAUSE button.
2	0	01	00	Set the data.
3				Turn off the power and turn on again.
4				Perform “Flange Back Adjustment (2)”

5-2. Flange Back Adjustment (2) RadarW

Perform this adjustment after performing “Flange Back Adjustment (1)”.

Subject	Subject more than 500m away (Subjects with clear contrast such as buildings, etc.)
Measurement Point	Check operation on TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	48 to 58

Note1: Make the lens horizontal and perform this adjustment.
Note2: The data of page: 0, address: 10 must be “00”.
Note3: Check that the data of page: 6, address: 02 is “00”. If not, to page: 6, address: 01, set data: 00, and press the PAUSE button.

Switch setting:

1) POWER ..... CAMERA
2) NIGHT SHOT ..... OFF

Preparations:

1) Set the zoom lens to the TELE end and expose a subject that is more than 500m away (subject with clear contrast such as building, etc.). (Nearby subjects less than 500m away should not be in the screen.)

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	6	01	13	Set the data, and press PAUSE button. (Note2)
3				Place a ND filter on the lens so that the optimum image is obtain.
4	6	01	29	Set the data, and press PAUSE button.
5	6	02		Check that the data changes to “01”. (Note4)

Note4: The adjustment data will be automatically input to page: F, address:: 48 to 58.

Processing after Completing Adjustments:

Order	Page	Address	Data	Procedure
1	6	01	00	Set the data, and press PAUSE button.
2	0	01	00	Set the data.
3				Turn off the power and turn on again.
4				Perform “Flange Back Check”

6. Flange Back Check

Subject	Siemens star (2.0m from the front of the lens) (Luminance : approx. 200 lux)
Measurement Point	Check operation on TV monitor
Measuring Instrument	
Specified Value	Focused at the TELE end and WIDE end.

Note1: The data of page: 0, address: 10 must be "00".

Switch setting:

1) POWER ..... CAMERA
2) NIGHT SHOT (Menu display) ..... OFF

Note2: When the auto focus is ON, the lens can be checked if it is focused or not by observing the data on the page 1 of the adjustment remote commander.

1) Select page: 0, address: 03, and set data: 0F.
2) Page 1 shows the state of the focus.

1 : 00 : XX
- Odd: Focused
- Even: Unfocused

Checking method:

1) Select page: 6, address: 40, and set data: 01.
2) Select page: 6, address: 41, and set data: 01.
3) Place the Siemens star 2.0m from the front of the lens.
4) To open the IRIS, decrease the luminous intensity to the Siemens star up to a point before noise appear on the image.
5) Shoot the Siemens star with the zoom TELE end.
6) Turn on the auto focus.
7) Check that the lens is focused (Note2).
8) Select page: 6, address: 21, and set data: 10.
9) Shoot the Siemens star with the zoom WIDE end.
10) Observe the TV monitor and check that the lens is focused.

Processing after Completing Adjustments:

1) Select page: 6, address: 21, and set data: 00.
2) Select page: 6, address: 40, and set data: 00.
3) Select page: 6, address: 41, and set data: 00.
4) Select page: 0, address: 03, and set data: 00.

7. MAX GAIN Adjustment RadarW

Setting the minimum illumination.
If it is not consistent, the image level required for taking subjects in low illuminance will not be produced (dark).

Subject	Clear chart (Approx. 1m from the front of the lens) (Note1)
Adjustment Page	F
Adjustment Address	19

Note1: Shoot the clear chart with the zoom WIDE end. And adjust the direction of the camera so that the chart is located in the center of the screen.
Note2: The data of page: 0, address: 10 must be "00".
Note3: This adjustment should be carried out upon completion of "Flange Back Adjustment".

Switch setting:

1) POWER ..... CAMERA
2) NIGHT SHOT ..... OFF
3) ZOOM ..... WIDE end

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	6	2C	01	Set the data.
3	6	40	01	Set the data.
4	6	41	01	Set the data.
5	6	96	28	Set the data.
6	6	97	00	Set the data.
7	6	01	6F	Set the data, and press PAUSE button.
8	6	02		Check that the data changes to "01". (Note4)

Note4: The adjustment data will be automatically input to page: F, address: 19.

Processing after Completing Adjustments

Order	Page	Address	Data	Procedure
1	6	2C	00	Set the data.
2	6	40	00	Set the data.
3	6	41	00	Set the data.
4	6	96	00	Set the data.
5	6	97	00	Set the data.
6	6	01	00	Set the data, and press PAUSE button.
7	0	01	00	Set the data.

8. Picture Frame Setting

Subject	Color bar chart (Color reproduction adjustment frame) (1.5m from the front of the lens)
Measurement Point	Video output terminal
Measuring Instrument	Oscilloscope and TV monitor
Specified Value	A=B, C=D, E=F

Note1: The following adjustments should be carried out upon completion of "Flange Back Adjustment".
Note2: The data of page: 0, address: 10 must be "00".

Switch setting:

1) POWER ..... CAMERA
2) NIGHT SHOT ..... OFF
3) FOCUS ..... MANUAL
4) DIGITAL ZOOM (Menu display) ..... OFF
5) STEADY SHOT (Menu display) ..... OFF

Setting method:

1) Adjust the zoom and the camera direction, and set to the specified position.
2) Mark the position of the picture frame on the monitor display, and adjust the picture frame to this position in following adjustments using "Color reproduction adjustment frame".

Check on the oscilloscope

1. Horizontal period

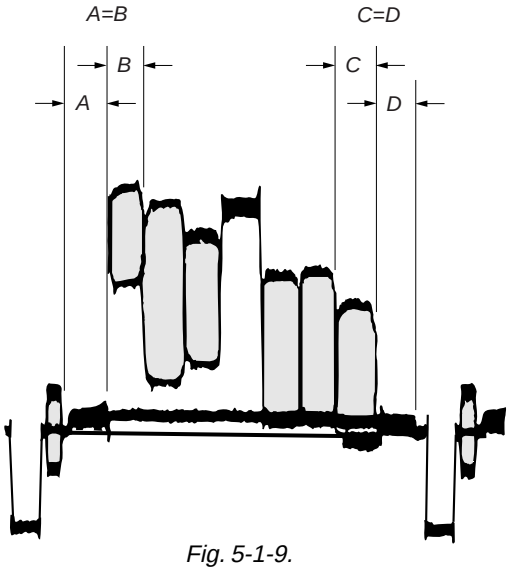


Fig. 5-1-9.

2. Vertical period

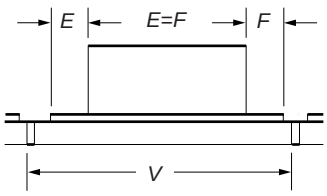


Fig. 5-1-10.

Check on the monitor TV (Underscanned mode)

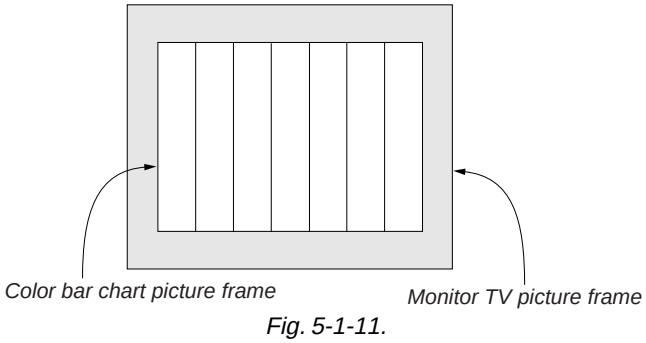


Fig. 5-1-11.

9. Color Reproduction Adjustment

Adjust the color Separation matrix coefficient so that proper color reproduction is produced.

Subject	Color bar chart (Color reproduction adjustment frame)
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Adjustment Page	F
Adjustment Address	37, 39, 40, 41
Specified Value	All color luminance points should settle within each color reproduction frame.

Note: The data of page: 0, address: 10 must be "00".

Switch setting:

1) POWER ..... CAMERA
2) NIGHT SHOT ..... OFF
3) FOCUS ..... MANUAL
4) DIGITAL ZOOM (Menu display) ..... OFF
5) STEADY SHOT (Menu display) ..... OFF

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 6, address: 9D, and set data: 18.
3) Select page: 6, address: 01, set data: 3D, and press the PAUSE button.
4) Select page: F, address: F0, set data: B7, and press the PAUSE button.
5) Adjust the GAIN and PHASE of the vectorscope, and adjust the burst luminance point to the burst position of the color reproduction frame.
6) Change the data of page: F, address: 37, 39, 40 and 41, and settle each color luminance point in each color reproduction frame.

Note: Be sure to press the PAUSE button of the adjustment remote commander before changing the addresses. If not, the new data will not be written to the memory.

Processing after Completing Adjustments:

1) Select page: 6, address: 01, set data: 00, and press the PAUSE button.
2) Select page: 6, address: 9D, and set data: 00.
3) Select page: 0, address: 01, and set data: 00.

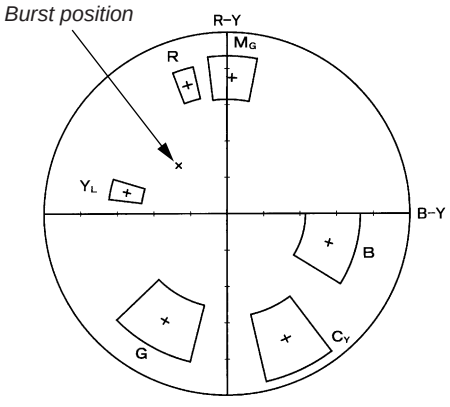


Fig. 5-1-12.

10. Auto White Balance & LV Standard Data Input RadarW

Adjust the white balance reference at 3200K, and adjust the normal coefficient of the light value.

Subject	Clear chart (Color reproduction adjustment frame)
Measurement Point	Display data of page 1 (Note5)
Measuring Instrument	Adjustment remote commander
Adjustment Page	F
Adjustment Address	1A, 1B, 30 to 33
Specified Value	0FF0 to 1010

Note1: This adjustments should be carried out upon completion of "Color Reproduction Adjustment".
Note2: After the power is turned on, this adjustment can be done only once.
Note3: The data of page: 0, address: 10 must be "00".
Note4: Check that the data of page: 6, address: 02 is "00". If not, to page: 6, address: 01, set data: 00, and press the PAUSE button.
Note5: Displayed data of page 1 of the adjustment remote commander.
1 : XX : XX
Display data

Switch setting:

1) POWER ..... CAMERA
2) NIGHT SHOT ..... OFF
3) FOCUS ..... MANUAL
4) DIGITAL ZOOM (Menu display) ..... OFF
5) STEADY SHOT (Menu display) ..... OFF

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2				Wait for 2 sec.
3	6	01	11	Set the data, and press PAUSE button.
4	6	01	0D	Set the data, and press PAUSE button.
5	6	02		Check that the data changes to "01". (Note6)
6	0	03	1E	Set the data.
	1			Check that the display data (Note5) satisfies the specified value.

Note6: The adjustment data will be automatically input to page: F, address: 1A, 1B, 30 to 33.

Processing after Completing Adjustments

Order	Page	Address	Data	Procedure
1	6	01	00	Set the data, and press PAUSE button.
2	0	03	00	Set the data.
3	0	01	00	Set the data.
4				Perform "Auto White Balance Adjustment".

11. Auto White Balance Adjustment RadarW

Adjust to the proper auto white balance output data.
If it is not correct, auto white balance and color reproducibility will be poor.

Subject	Clear chart (Color reproduction adjustment frame)
Filter	Filter C14 for color temperature correction
Measurement Point	Display data of page 1 (Note5)
Measuring Instrument	Adjustment remote commander
Adjustment Page	F
Adjustment Address	34, 35
Specified Value	R ratio: 2B3C to 2C3C B ratio: 57C8 to 58C8

Note1: This adjustments should be carried out upon completion of "Auto White Balance & LV Standard Data Input".
Note2: After the power is turned on, this adjustment can be done only once.
Note3: The data of page: 0, address: 10 must be "00".
Note4: Displayed data of page 1 of the adjustment remote commander.
1 : XX : XX
└──── Display data

Switch setting:

1) POWER ..... CAMERA
2) NIGHT SHOT ..... OFF
3) FOCUS ..... MANUAL
4) DIGITAL ZOOM (Menu display) ..... OFF
5) STEADY SHOT (Menu display) ..... OFF

Adjusting method:

Order	Page	Address	Data	Procedure
1				Place the C14 filter for color temperature correction on the lens.
2	0	01	01	Set the data.
3	F	44		Write down the data.
4	F	44	2B	Set the data, and press PAUSE button.
5	F	45		Write down the data.
6	F	45	BC	Set the data, and press PAUSE button.
7	F	46		Write down the data.
8	F	46	58	Set the data, and press PAUSE button.
9	F	47		Write down the data.
10	F	47	48	Set the data, and press PAUSE button.
11	6	01	83	Set the data, and press PAUSE button.
12	6	01	81	Set the data, and press PAUSE button.
13	6	02		Check that the data changes to "01". (Note5)
14	6	01	3F	Set the data, and press PAUSE button.
15	0	03	04	Set the data.
16	1			Check that the display data (Note4) satisfies the R ratio specified value.
17	0	03	05	Set the data.
18	1			Check that the display data (Note4) satisfies the B ratio specified value.

Note5: The adjustment data will be automatically input to page: F, address: 34, 35.

Processing after Completing Adjustments:

Order	Page	Address	Data	Procedure
1	F	44		Set the data that is written down at step 3, and press PAUSE button.
2	F	45		Set the data that is written down at step 5, and press PAUSE button.
3	F	46		Set the data that is written down at step 7, and press PAUSE button.
4	F	47		Set the data that is written down at step 9, and press PAUSE button.
5	6	01	00	Set the data, and press PAUSE button.
6	0	03	00	Set the data.
7	0	01	00	Set the data.

12. White Balance Check RadarW

Subject	Clear chart (Color reproduction adjustment frame)
Filter	Filter C14 for color temperature correction ND filter 1.0 and 0.4 and 0.1
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Specified Value	Fig. 5-1-13. A to B

Note1: The data of page: 0, address: 10 must be “00”.

Switch setting:

1) POWER ..... CAMERA
2) NIGHT SHOT ..... OFF
3) FOCUS ..... MANUAL
4) DIGITAL ZOOM (Menu display) ..... OFF
5) STEADY SHOT (Menu display) ..... OFF

Checking method:

Order	Page	Address	Data	Procedure
				Indoor white balance check
1				Check that the lens is not covered with either filter.
2	6	01	0F	Set the data, and press PAUSE button.
3				Check that the center of the white luminance point is within the circle shown Fig. 5-1-13. A.
4	6	01	00	Set the data, and press PAUSE button.
				Outdoor white balance check
5				Place the C14 filter on the lens.
6	6	01	3F	Set the data, and press PAUSE button.
7				Check that the center of the white luminance point is within the circle shown Fig. 5-1-13. B.
8				Remove the C14 filter.
				LV data check
9				Place the ND filter 1.5 (1.0+0.1+0.4) on the lens.
10	6	01	00	Set the data, and press PAUSE button.
11	0	03	06	Set the data.
12	1			Check that the display data (Note2) satisfies the specified value. Specified value: 8000 to 8BC0

Note2: Displayed data of the adjustment remote commander.

1 : XX : XX
└── Display data

Processing after Completing Adjustments

Order	Page	Address	Data	Procedure
1	6	01	00	Set the data, and press PAUSE button.
2	0	03	00	Set the data.

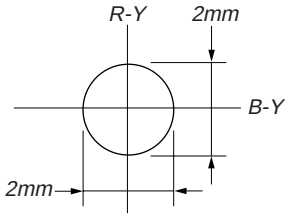


Fig. 5-1-13(A).

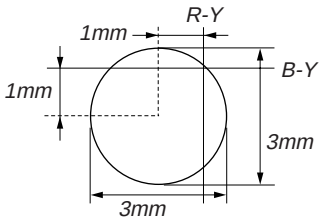


Fig. 5-1-13(B).

13. Mechanical Shutter Adjustment RadarW

Adjustment Page	F
Adjustment Address	76 to 8B

Note: The data of page: 0, address: 10 must be “00”.

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Input the following data to page: F, addresses: 76 to 8B.

Note: Press the PAUSE button of the adjustment remote commander each time to set the data.

Address	Data
76	4B
77	00
78	3D
79	00
7A	35
7B	00
7C	2F
7D	00
7E	27
7F	00
80	66
81	7D
82	7D
83	6F
84	61
85	1F
86	80
87	80
88	80
89	80
8A	80
8B	80

3) Select page: 0, address: 01, and set data: 00.

14. Black Defective CCD Adjustment RadarW

Detect the black defective positions of the CCD imager.

Subject	Clear chart (All white) (Approx. 40cm from the front of the lens)
Adjustment Page	1E (Note1)
Adjustment Address	20 to 2F

Note1: When reading or writing the 1E page data, select page: 0, address: 10, and set data: 01, then select E page. The 1E page can be chosen by this data setting.
After reading or writing, reset the data of page: 0, address: 10 to “00”.

Note2: This adjustment should be carried out upon completion of “Flange Back Adjustment”.

Note3: Check that the data of page: 6, address: 02 is “00”. If not, to page: 6, address: 01, set data: 00, and press the PAUSE button.

Switch setting:

1) POWER ..... CAMERA
2) NIGHT SHOT ..... OFF

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	0	10	00	Set the data.
3	6	2C	01	Set the data.
4	6	9C	01	Set the data.
5	6	90	50	Set the data.
6	6	91	01	Set the data.
7	6	92	00	Set the data.
8	6	93	01	Set the data.
9	6	01	79	Set the data, and press PAUSE button.
10				Adjust the direction of the camera so that the whole of the screen is white.
11	6	01	8D	Set the data, and press PAUSE button.
12	6	02		Check that the data changes to “01”. (Note4)

Note4: The adjustment data will be automatically input to page: 1E, address: 20 to 2F

Processing after Completing Adjustments

Order	Page	Address	Data	Procedure
1	0	10	00	Set the data.
2	6	01	00	Set the data, and press PAUSE button.
3	6	2C	00	Set the data.
4	6	9C	00	Set the data.
5	6	90	00	Set the data.
6	6	91	00	Set the data.
7	6	93	00	Set the data.
8	0	01	00	Set the data.

15. Steady Shot Check RadarW

Precautions on the Parts Replacement
There are two types of repair parts.
Type A: CG-L43A0
Type B: CG-L43A1
Replace the broken sensor with a same type sensor. If replace with other type parts, the image will vibrate up and down or left and right during hand-shake correction operations.

Precautions on Angular Velocity Sensor
The sensor incorporates a precision oscillator. Handle it with care as if it dropped, the balance of the oscillator will be disrupted and operations will not be performed properly.

Subject	Arbitrary
Measurement Point	Display data of page 1 (Note1)
Measuring Instrument	Adjustment remote commander
Specified Value	2B00 to 4B00

Note1: Displayed data of the adjustment remote commander.
1 : XX : XX
Display data
Note2: The data of page: 0, address: 10 must be “00”.

Switch setting:
1) STEADY SHOT (Menu display) ..... ON
2) ZOOM ..... TELE end

Adjusting method:

Order	Page	Address	Data	Procedure
				Pitch sensor check (JK-217 board SE5302)
1	0	03	11	Set the data.
2	1			Check that the display data (Note1) satisfies the specified value.
				Yaw sensor check (JK-217 board SE5301)
3	0	03	12	Set the data.
4	1			Check that the display data (Note1) satisfies the specified value.

Processing after Completing Adjustments

Order	Page	Address	Data	Procedure
1	0	03	00	Set the data.
2				Move the camcorder, and check that the steady shot operations have been performed normally

1-4. COLOR ELECTRONIC VIEWFINDER SYSTEM ADJUSTMENT

Note1: When replacing the LCD unit, be careful to prevent damages caused by static electricity.

Note2: Before performing the adjustments, check the data of page: 0, address: 10 is "00". If not, set data: 00 to this address.

Note3: As the PANEL CLOSE switch is attached to the cabinet (R), this cabinet must be attached when performing adjustments.
If you perform the adjustments with cabinet (R) removed, set the following data.
1) Select page: 3, address: C4, and set data: 67.
2) Select page: 3, address: C5, and set data: 01.
Reset the data after completing adjustment.
1) Select page: 3, address: C4, and set data: 00.
2) Select page: 3, address: C5, and set data: 00.

[Adjusting connector]

Most of the measuring points for adjusting the viewfinder system are concentrated in CN1002 of VC-281 board.
Connect the Measuring Instruments via the CPC-8 jig (J-6082-388-A).
The following table shows the Pin No. and signal name of CN1002.

Pin No.	Signal Name	Pin No.	Signal Name
1	LANC SIG	2	N.C.
3	N.C.	4	EVF VG
5	EVF VCO	6	GND
7	PANEL VG	8	PD VCO
9	H START	10	XHD/PSIG
11	PANEL COM	12	TMS (MAKER CHECK)
13	N.C.	14	N.C.
15	N.C.	16	GND
17	SWP	18	RF IN/LANC JACK IN
19	GND	20	RF MON

Table 5-1-13.

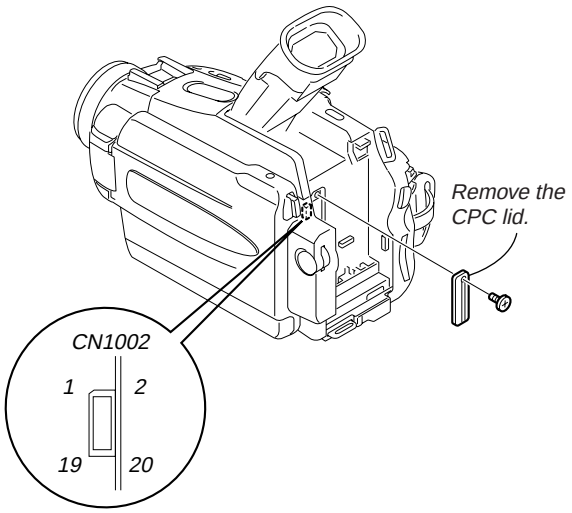


Fig. 5-1-14.

1. VCO Adjustment (VA-117 board)

Set the VCO free-run frequency. If deviated, the EVF screen will be blurred.

Mode	Camera
Subject	Arbitrary
Measurement Point	Pin ⑤ of CN1002 of VC-281 board (EVF VCO)
Measuring Instrument	Frequency counter
Adjustment Page	C
Adjustment Address	51, 52
Specified Value	f = 15625 ± 30Hz

Note1: The data of page: 0, address: 10 must be "00".

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	C	51		Change the data and set the VCO frequency (f) to the specified value.
3	C	51		Press PAUSE button.
4	C	51		Read the data, and this data is named D_{51}.
5				Convert D_{51} to decimal notation, and obtain D_{51}'. (Note2)
6				Calculate D_{52}' using following equations (Decimal calculation) When $D_{51}' \geqq 24$ $D_{52}' = D_{51}' - 24$ When $D_{51}' < 24$ $D_{52}' = 0$
7				Convert D_{52}' to a hexadecimal number, and obtain D_{52}. (Note2)
8	C	52	D_{52}	Set the data, and press PAUSE button.
9	0	01	00	Set the data.

Note2: Refer to "Table 5-4-1. Hexadecimal-decimal Conversion Table".

2. RGB AMP Adjustment (VA-117 board)

Set the D range of the RGB driver used to drive the LCD to the specified value. If deviated, the LCD screen will become blackish or saturated (whitish).

Mode	Camera
Subject	Arbitrary
Measurement Point	Pin ④ of CN1002 of VC-281 board (EVF VG)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	54
Specified Value	A = 7.14 ± 0.10V

Note: The data of page: 0, address: 10 must be "00".

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	C	54		Change the data and set the voltage (A) between the reversed waveform pedestal and non-reversed waveform pedestal to the specified value.
3	C	54		Press PAUSE button.
4	0	01	00	Set the data.

3. Contrast Adjustment (VA-117 board)

Set the level of the VIDEO signal for driving the LCD to the specified value. If deviated, the screen image will be blackish or saturated (whitish).

Mode	Camera
Subject	Arbitrary
Measurement Point	Pin ④ of CN1002 of VC-281 board (EVF VG)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	58
Specified Value	A = 2.38 ± 0.10V

Note: The data of page: 0, address: 10 must be "00".

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	C	58		Change the data and set the voltage (A) between the 100 IRE and 0 IRE (pedestal) to the specified value. (The data should be "00" to "7F".)
3	C	58		Press PAUSE button.
4	0	01	00	Set the data.

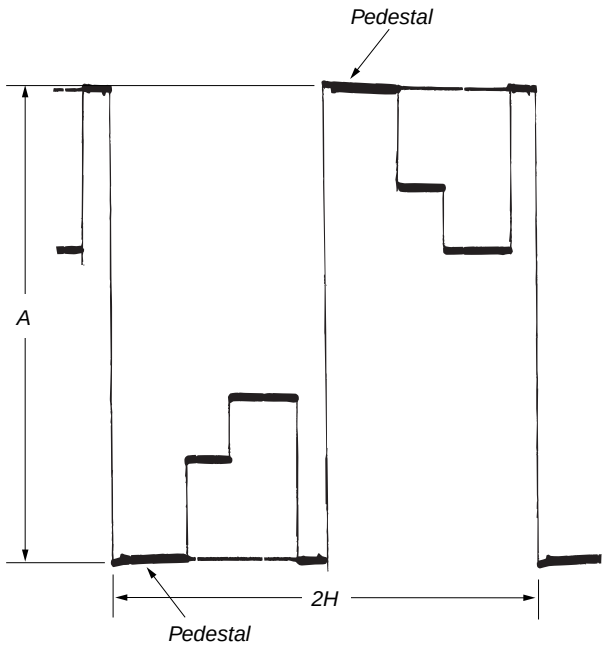


Fig. 5-1-15.

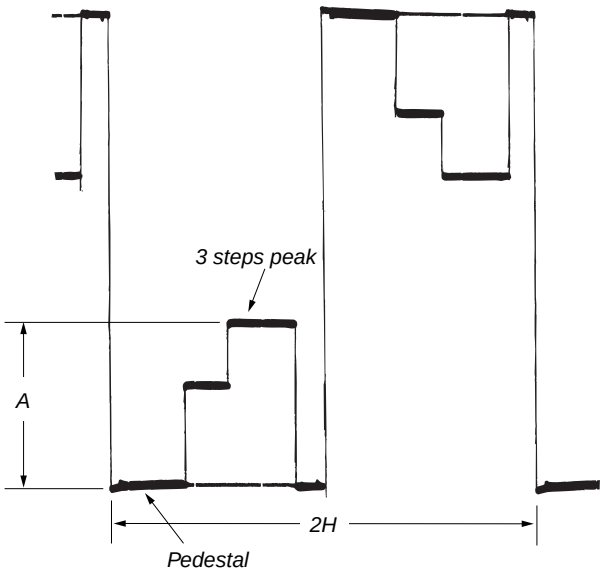


Fig. 5-1-16.

4. White Balance Adjustment (VA-117 board)

Correct the white balance.
If deviated, the reproduction of the EVF screen may degenerate.

Mode	Camera
Subject	Arbitrary
Measurement Point	Check on EVF screen
Measuring Instrument	
Adjustment Page	C
Adjustment Address	56, 57
Specified Value	The EVF screen should not be colored.

Note1: Check the white balance only when replacing the following parts. If necessary, adjust them.
1. LCD panel
2. Light induction plate
3. IC4201

Note2: The data of page: 0, address: 10 must be “00”.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	C	56	80	Set the data, and press PAUSE button.
3	C	57	80	Set the data, and press PAUSE button.
4	C	57		Check that the EVF screen is not colored. If not colored, proceed to step 10.
5	C	56		Change the data so that the EVF screen is not colored.
6	C	56		Press PAUSE button.
7	C	57		Change the data so that the EVF screen is not colored.
8	C	57		Press PAUSE button.
9	C	57		If the EVF screen is colored, repeat steps 5 to 9.
10	0	01	00	Set the data.

1-5. LCD SYSTEM ADJUSTMENT

Note1: The back light (fluorescent tube) is driven by a high voltage AC power supply. Therefore, do not touch the back light holder to avoid electrical shock.
Note2: When replacing the LCD unit, be careful to prevent damages caused by static electricity.
Note3: Before performing the adjustments, check the data of page: 0, address: 10 is "00". If not, set data: 00 to this address.

Switch setting:
LCD BRIGHT(Menu setting) ..... Center.

[Adjusting connector]
Most of the measuring points for adjusting the LCD system are concentrated in CN1002 of the VC-281 board. Connect the measuring instruments via the multi CPC-8 jig (J-6082-388-A). The following table shows the Pin No. and signal name of CN1002.

Pin No.	Signal Name	Pin No.	Signal Name
1	LANC SIG	2	N.C.
3	N.C.	4	EVF VG
5	EVF VCO	6	GND
7	PANEL VG	8	PD VCO
9	H START	10	XHD/PSIG
11	PANEL COM	12	TMS (MAKER CHECK)
13	N.C.	14	N.C.
15	N.C.	16	GND
17	SWP	18	RF IN/LANC JACK IN
19	GND	20	RF MON

Table 5-1-14.

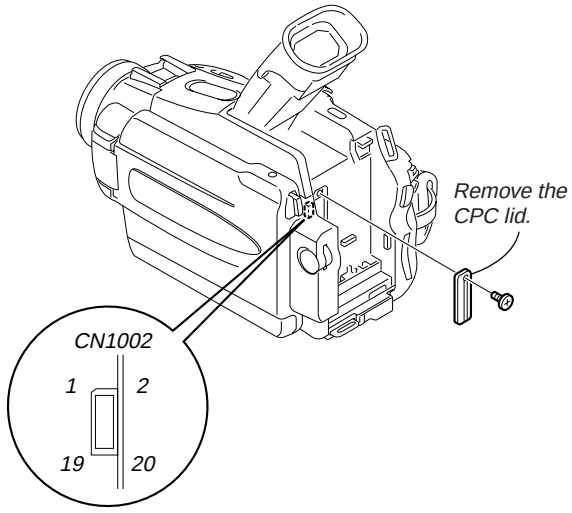


Fig. 5-1-17.

1. VCO Adjustment (PD-161 board)

Set the VCO free-run frequency. If deviated, the LCD screen will be blurred.

Mode	VTR stop
Signal	No signal
Measurement Point	Pin ⑨ of CN1002 of VC-281 board (H START)
Measuring Instrument	Frequency counter
Adjustment Page	C
Adjustment Address	61, 62
Specified Value	f = 15625 ± 30Hz

Note1: The data of page: 0, address: 10 must be "00".

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	C	61		Change the data and set the VCO frequency (f) to the specified value.
3	C	61		Press PAUSE button.
4	C	61		Read the data, and this data is named D_{61}.
5				Convert D_{61} to decimal notation, and obtain D_{61}'. (Note2)
6				Calculate D_{62}' using following equations (Decimal calculation) [DCR-TRV24E/TRV25E] When $D_{61}' \geqq 26$ $D_{62}' = D_{61}' - 26$ When $D_{61}' < 26$ $D_{62}' = 0$ [DCR-TRV27E] When $D_{61}' \geqq 9$ $D_{62}' = D_{61}' - 9$ When $D_{61}' < 9$ $D_{62}' = 0$
7				Convert D_{62}' to a hexadecimal number, and obtain D_{62}. (Note2)
8	C	62	D_{62}	Set the data, and press PAUSE button.
9	0	01	00	Set the data.

Note2: Refer to "Table 5-4-1. Hexadecimal-decimal Conversion Table".

2. RGB AMP Adjustment (PD-161 board)

Set the D range of the RGB decoder used to drive the LCD to the specified value. If deviated, the LCD screen will become blackish or saturated (whitish).

Mode	VTR stop
Signal	No signal
Measurement Point	Pin ⑦ of CN1002 of VC-281 board (PANEL VG) Ext. trigger: Pin ⑪ of CN1002 of VC-281 board (PANEL COM)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	64
Specified Value	A = 3.63 ± 0.05V (TRV24E/TRV25E) A = 3.64 ± 0.05V (TRV27E)

Note: The data of page: 0, address: 10 must be "00".

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	C	64		Change the data and set the voltage (A) between the reversed waveform pedestal and non-reversed waveform pedestal to the specified value. (The data should be "00" to "3F".)
3	C	64		Press PAUSE button.
4	0	01	00	Set the data.

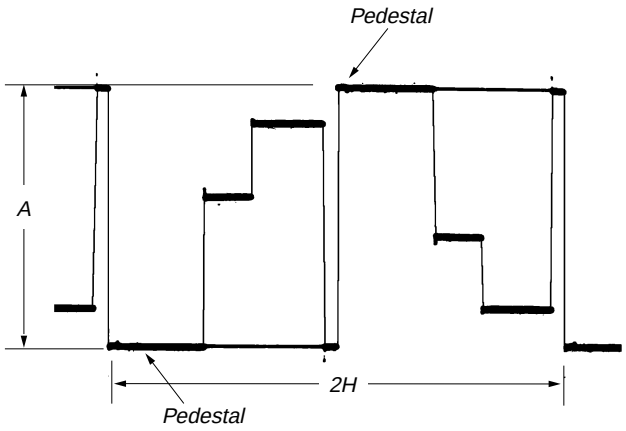


Fig. 5-1-18.

3. Contrast Adjustment (PD-161 board)

Set the level of the VIDEO signal for driving the LCD to the specified value. If deviated, the screen image will be blackish or saturated (whitish).

Mode	VTR stop
Signal	No signal
Measurement Point	Pin ⑦ of CN1002 of VC-281 board (PANEL VG) Ext. trigger: Pin ⑪ of CN1002 of VC-281 board (PANEL COM)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	69
Specified Value	A = 3.37 ± 0.05V (TRV24E/TRV25E) A = 3.31 ± 0.05V (TRV27E)

Note: The data of page: 0, address: 10 must be "00".

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	C	69		Change the data and set the voltage (A) between the 100 IRE and 0 IRE (pedestal) to the specified value. (The data should be "00" to "7F".)
3	C	69		Press PAUSE button.
4	0	01	00	Set the data.

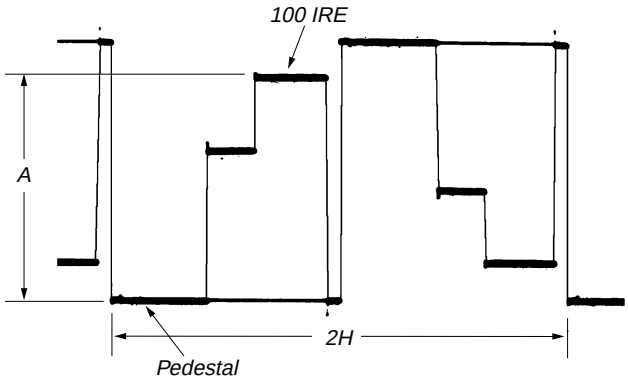


Fig. 5-1-19.

4. COM AMP Adjustment (PD-161 board)

Set the common electrode drive signal level of LCD to the specified value.

Mode	VTR stop
Signal	No signal
Measurement Point	Pin ⑪ of CN1002 of VC-281 board (PANEL COM)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	66
Specified Value	A = 6.34 ± 0.05V (TRV24E/TRV25E) A = 6.14 ± 0.05V (TRV27E)

Note: The data of page: 0, address: 10 must be "00".

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	C	66		Change the data and set the PANEL COM signal level (A) to the specified value.
3	C	66		Press PAUSE button.
4	0	01	00	Set the data.

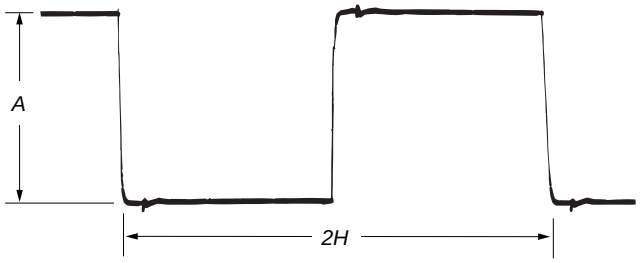


Fig. 5-1-20.

5. V COM Adjustment (PD-161 board)

Set the DC bias of the common electrode drive signal of LCD to the specified value.
If deviated, the LCD display will move, producing flicker and conspicuous vertical lines.

Mode	VTR stop
Signal	No signal
Measurement Point	Check on LCD display
Measuring Instrument	
Adjustment Page	C
Adjustment Address	63
Specified Value	The brightness difference between the section A and section B is minimum.

Note1: This adjustment should be carried out upon completion of the following adjustments.
RGB AMP Adjustment
Contrast Adjustment
COM AMP Adjustment

Note2: The data of page: 0, address: 10 must be "00".

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	C	63		Change the data so that the brightness of the section A and that of the section B is equal.
3	C	63		Subtract 8 from the data.
4	C	63		Press PAUSE button.
5	0	01	00	Set the data.

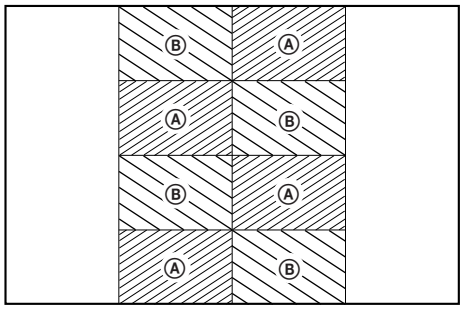


Fig. 5-1-21.

6. White Balance Adjustment (PD-161 board)

Correct the white balance.
If deviated, the reproduction of the LCD screen may degenerate.

Mode	VTR stop
Signal	No signal
Measurement Point	Check on LCD screen
Measuring Instrument	
Adjustment Page	C
Adjustment Address	67, 68
Specified Value	The LCD screen should not be colored.

Note1: Check the white balance only when replacing the following parts. If necessary, adjust them.
1. LCD panel
2. Light induction plate
3. IC5501

Note2: The data of page: 0, address: 10 must be “00”.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	C	67	80	Set the data, and press PAUSE button.
3	C	68	80	Set the data, and press PAUSE button.
4	C	68		Check that the LCD screen is not colored. If not colored, proceed to step 10.
5	C	67		Change the data so that the LCD screen is not colored.
6	C	67		Press PAUSE button.
7	C	68		Change the data so that the LCD screen is not colored.
8	C	68		Press PAUSE button.
9	C	68		If the LCD screen is colored, repeat steps 5 to 9.
10	0	01	00	Set the data.

5-2. MECHANISM SECTION ADJUSTMENT

On the mechanism section adjustment

For detail of mechanism section adjustments, checks, and replacement of mechanism parts, refer to the separate volume "DV MECHANICAL ADJUSTMENT MANUAL Ⅵ J Mechanism ".

Note: Before performing the adjustments, check the data of page: 0, address: 10 is "00". If not, set data: 00 to this address.

2-1. HOW TO ENTER RECORD MODE WITHOUT CASSETTE

1) Connect the adjustment remote commander to the LANC jack.
2) Turn the HOLD switch of the adjustment remote commander to the ON position.
3) Close the cassette compartment without the cassette.
4) Select page: 3, address: 01, and set data: 0C, and press the PAUSE button of the adjustment remote commander. (The mechanism enters the record mode automatically.)
   Note: The function buttons becomes inoperable.
5) To quit the record mode, select page: 3, address: 01, set data: 00, and press the PAUSE button of the adjustment remote commander. (Whenever you want to quit the record mode, be sure to quit following this procedure.)

2-2. HOW TO ENTER PLAYBACK MODE WITHOUT CASSETTE

1) Connect the adjustment remote commander to the LANC jack.
2) Turn the HOLD switch of the adjustment remote commander to the ON position.
3) Close the cassette compartment without the cassette.
4) Select page: 3, address: 01, and set data: 0B, and press the PAUSE button of the adjustment remote commander.
   (The mechanism enters the playback mode automatically.)
   Note: The function buttons becomes inoperable.
5) To quit the playback mode, select page: 3, address: 01, set data: 00, and press the PAUSE button of the adjustment remote commander. (Whenever you want to quit the playback mode, be sure to quit following this procedure.)

2-3. TAPE PATH ADJUSTMENT

1. Preparation for Adjustment

1) Clean the tape running side (tape guide, drum, capstan shaft, pinch roller, etc.).
2) Connect the adjustment remote commander to the LANC jack.
3) Turn the HOLD switch of the adjustment remote commander to the ON position.
4) Connect an oscilloscope to VC-281 board CN1002 via the CPC-8 jig (J-6082-388-A).
   Channel 1: VC-281 board, CN1002 Pin ⑳ (Note)
   External trigger: VC-281 board, CN1002 Pin ⑰
   Note: Connect a 75Ω resistor between Pins ⑳ of CN1002 and ⑲ (GND).
5) Playback the alignment tape for tracking. (XH2-1)
6) Select page: 3, address: 33, and set data: 08.
7) Select page: 3, address: 26, and set data: 31.
8) Check that the oscilloscope RF waveform is normal at the entrance and exit.
   If not normal, adjust according to the separate volume "DV MECHANICAL ADJUSTMENT MANUAL Ⅵ J Mechanism ".

CN1002 of VC-281 board

Pin No.	Signal Name	Pin No.	Signal Name
1	LANC SIG	2	N.C.
3	N.C.	4	EVF VG
5	EVF VCO	6	GND
7	PANEL VG	8	PD VCO
9	H START	10	XHD/PSIG
11	PANEL COM	12	TMS (MAKER CHECK)
13	N.C.	14	N.C.
15	N.C.	16	GND
17	SWP	18	RF IN/LANC JACK IN
19	GND	20	RF MON

Table 5-2-1.

2. Processing after Completing Operations:

1) Connect the adjustment remote commander to the LANC jack and set the HOLD switch to the ON position.
2) Select page: 3, address: 26, and set data: 00.
3) Select page: 3, address: 33, and set data: 00.

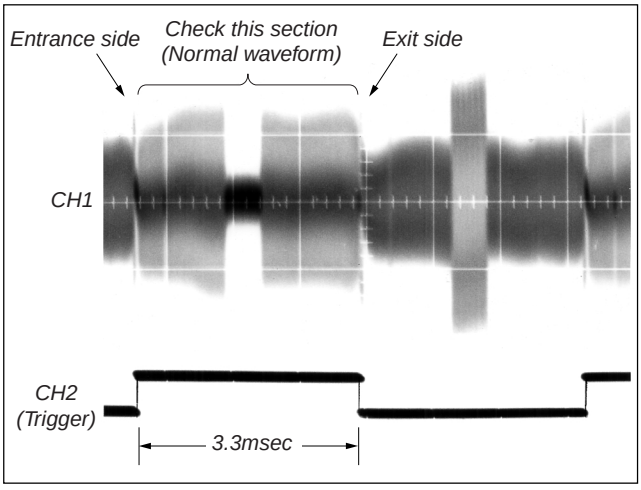


Fig. 5-2-1.

5-3. VIDEO SECTION ADJUSTMENTS

3-1. PREPARATIONS BEFORE ADJUSTMENTS

Use the following measuring instruments for video section adjustments.

3-1-1. Equipment Required

1) TV monitor
2) Oscilloscope (dual-phenomenon, band above 30 MHz with delay mode) (Unless specified otherwise, use a 10 : 1 probe.)
3) Frequency counter
4) Pattern generator with video output terminal.
5) Digital voltmeter
6) Audio generator
7) Audio level meter
8) Audio distortion meter
9) Audio attenuator
10) Regulated power supply
11) Alignment tapes
    - Tracking standard (XH2-1)
      Parts code: 8-967-997-01
    - SW/OL standard (XH2-3)
      Parts code: 8-967-997-11
    - Audio operation check for PAL (XH5-3P)
      Parts code: 8-967-997-55
    - System operation check for PAL (XH5-5P)
      Parts code: 8-967-997-66
12) Adjustment remote commander (J-6082-053-B)
13) CPC-8 jig (J-6082-388-A)
14) Extension cable (100P, 0.5mm) (J-6082-352-A)
    For extension between the VA-117 board (CN4002) and VC-281 board (CN1007).

3-1-2. Precautions on Adjusting

Note1: Before performing the adjustments, check the data of page: 0, address: 10 is "00". If not, set data: 00 to this address.

1) The adjustments of this unit are performed in the VTR mode or camera mode.
   To set to the VTR mode, set the power switch to "VCR" (or "PLAYER") or set the "Forced VTR Power ON mode" using the adjustment remote commander (Note2).
   To set to the Camera mode, set the power switch to "CAMERA" or set the "Forced Camera Power ON mode" using the adjustment remote commander (Note3).
   After completing adjustments, be sure to exit the "Forced VTR Power ON Mode" or "Forced Camera Power ON Mode". (Note5)
2) The front panel block (Focus ring, Microphone unit., MA-409 board, FB-219 board) need not be assembled. To remove it, disconnect the following connector.
   VA-117 board CN4003 (24P, 0.5mm)
3) Cabinet (R) (CK-108board, LCD block) need not be connected. But removing the cabinet (R) (removing the VC-281 board CN1005) means removing the lithium 3V power supply (CK-108 board, BT5201) , data such as date, time, user-set menus will be lost. After completing adjustments, reset these data.
   But, the self-diagnosis data and the data on history of use (total drum rotation time etc.) will be kept even if the cabinet (R) has been removed. (Refer to "5-4.Service Mode" for the data on the history use and the self-diagnosis data.)
   To remove the cabinet (R), disconnect the following connectors.
   VA-117 board CN4004 (12P, 0.5mm)
   VC-281 board CN1005 (28P, 0.5mm)
4) The EVF block (LB-077 board) is need not be connected. To remove it, disconnect the following connector.
   VA-117 board CN4201 (20P, 0.5mm)
5) The intelligent accessory shoe is need not be connected. To remove it, disconnect the following connector.
   VA-117 board CN4001 (20P, 0.5mm)
6) To open the VA-117 board, use the following extension cable between the VA-117 board CN4002 and VC-281 board CN1007.
   J-6082-352-A (100P, 0.5mm)
7) The lens block (CD-366 board) is need not be connected. To remove it, disconnect the following connectors.
   VC-281 board CN1501 (24P, 0.5mm)
   VC-281 board CN1301 (27P, 0.3mm)
8) By setting the "Forced VTR Power ON mode", the video section can be operate even if the control switch block (PS-CX2670) has been removed. When removing it, disconnect the following connector.
   VC-281 board CN1008 (20P, 0.5mm)

Note2: Setting the "Forced VTR Power ON" mode (VTR mode)
1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 10, set data: 02, and press the PAUSE button of the adjustment remote commander.
   The above procedure will enable the VTR power to be turned on with the control switch block (PS-CX2670 block) removed.
   After completing adjustments, be sure to exit the "Forced Power ON mode".

Note3: Setting the "Forced Camera Power ON" mode (Camera mode)
1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 10, set data: 01, and press the PAUSE button of the adjustment remote commander.
   The above procedure will enable the camera power to be turned on with the control switch block (PS-CX2670 block) removed.
   After completing adjustments, be sure to exit the "Forced Power ON mode".

Note4: Setting the "Forced Memory Power ON" mode (Memory mode)
1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 10, set data: 05, and press the PAUSE button of the adjustment remote commander.
   The above procedure will enable the memory power to be turned on with the control switch block (PS-CX2670 block) removed.
   After completing adjustments, be sure to exit the "Forced Power ON mode".

Note5: Exiting the "Forced Power ON" mode
1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 10, set data: 00, and press the PAUSE button of the adjustment remote commander.
3) Select page: 0, address: 01, and set data: 00.

3-1-3. Adjusting Connectors

Some of the adjusting points of the video section are concentrated at VC-281 board CN1002. Connect the measuring instruments via the CPC-8 jig (J-6082-388-A). The following table lists the pin numbers and signal names of CN1002.

Pin No.	Signal Name	Pin No.	Signal Name
1	LANC SIG	2	N.C.
3	N.C.	4	EVF VG
5	EVF VCO	6	GND
7	PANEL VG	8	PD VCO
9	H START	10	XHD/PSIG
11	PANEL COM	12	TMS (MAKER CHECK)
13	N.C.	14	N.C.
15	N.C.	16	GND
17	SWP	18	RF IN/LANC JACK IN
19	GND	20	RF MON

Table 5-3-1.

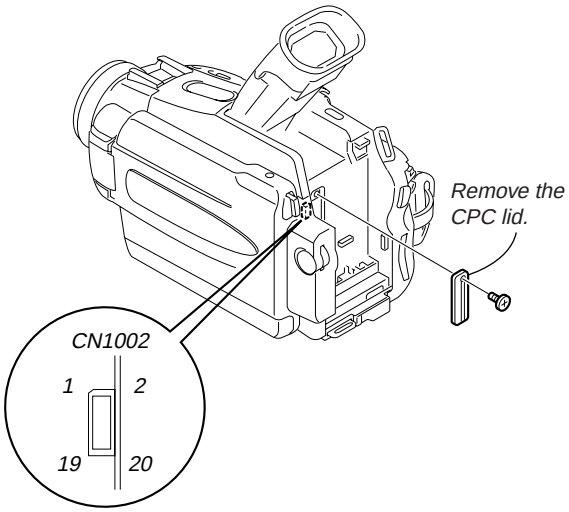


Fig. 5-3-1.

3-1-4. Connecting the Equipment

Connect the measuring instruments as shown in Fig. 5-3-2, and perform the adjustments.

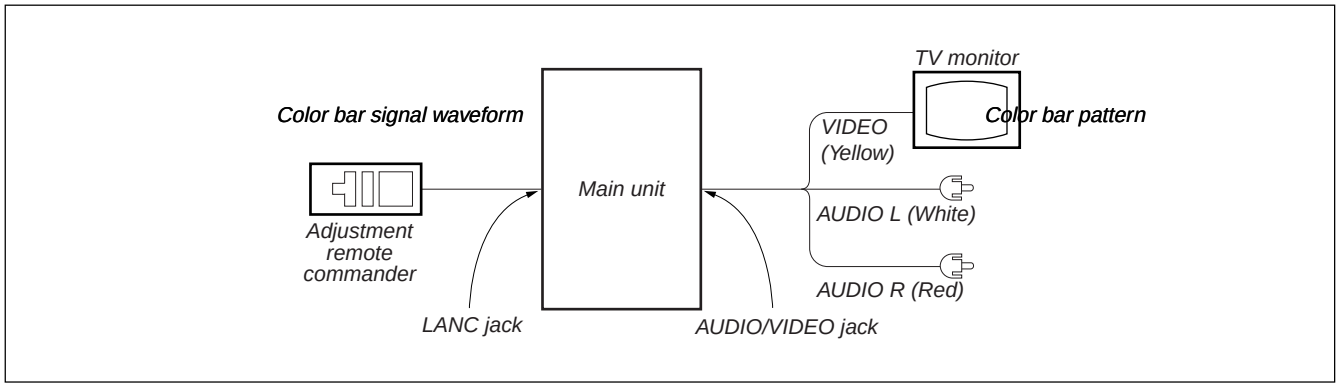


Fig. 5-3-2.

3-1-5. Alignment Tapes

Use the alignment tapes shown in the following table.
Use tapes specified in the signal column of each adjustment.

Name	Use
Tracking standard (XH2-1)	Tape path adjustment
SW/OL standard (XH2-3)	Switching position adjustment
Audio operation check (XH5-3P)	Audio system adjustment
System operation check (XH5-5P)	Operation check

Fig. 5-3-3 shows the 75% color bar signals recorded on the alignment tape for Audio Operation Check.

Note: Measure with video terminal (Terminated at 75 Ω)

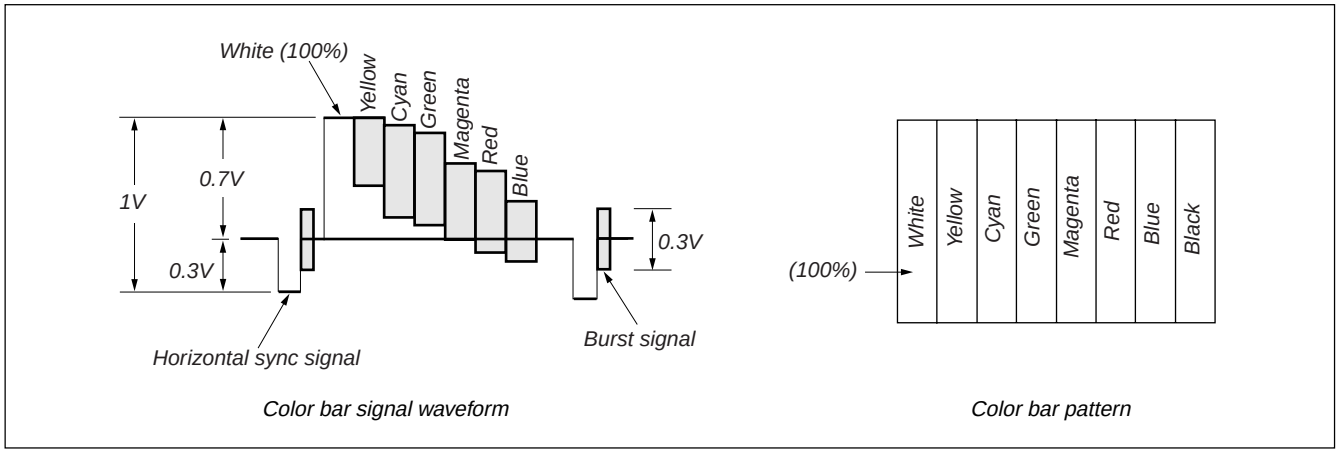


Fig. 5-3-3. Color bar signal of alignment tapes

3-1-6. Input/Output Level and Impedance

Video input/output
- Special stereo mini jack
- Video signal: 1 Vp-p, 75 Ω unbalanced, sync negative

S video input/output
- 4-pin mini DIN
- Luminance signal: 1 Vp-p, 75 Ω unbalanced, sync negative
- Chrominance signal: 0.300 Vp-p, 75 Ω unbalanced

Audio input/output
- Special stereo mini jack
- Input level: 327mV
- Input impedance: More than 47kΩ
- Output level: 327 mV (at load impedance 47 kΩ)
- Output impedance: Below 2.2 kΩ

3-2. SYSTEM CONTROL SYSTEM ADJUSTMENT

1. Initialization of 8, A, B, C, D, E, F, 1B, 1E, 1F Page Data

If the 8, A, B, C, D, E, F, 1B, 1E, 1F page data is erased due to some reason, perform "1-2. INITIALIZATION OF 8, A, B, C, D, E, F, 1B, 1E, 1F PAGE DATA" of "5-1. CAMERA SECTION ADJUSTMENT".

Note: When reading or writing the 1B, 1E, 1F page data, select page: 0, address: 10, and set data: 01, then select B, E or F page. The 1B, 1E or 1F page can be chosen by this data setting.
After reading or writing, reset the data of page: 0, address: 10 to "00".

2. Serial No. Input

Note: Before performing the adjustments, check the data of page: 0, address: 10 is "00". If not, set data: 00 to this address.

2-1. Company ID Input

Write the company ID in the EEPROM (nonvolatile memory).

Page	8
Address	8C, 8D, 8E, 8F, 90

Input method:

1) Select page: 0, address: 01, and set data: 01.
2) Input the following data to page: 8, addresses: 8C to 90.
   Note: Press the PAUSE button of the adjustment remote commander each time to set the data.

Address	Data
8C	08
8D	00
8E	46
8F	01
90	02

3) Select page: 0, address: 01, and set data: 00.

2-2. Serial No. Input

Write the serial No. and model code in the EEPROM (nonvolatile memory). Convert the serial No. on the name plate from decimal to hexadecimal, and write in the EEPROM.

Page	8
Address	91, 92, 93

Input method:

1) Select page: 0, address: 01, and set data: 01.
2) Read the serial No. on the name plate, and take it as D_1.
   Example: If the serial No. is 77881.
   $D_1 = 77881$
   Note: Use six digits of the low rank when a serial No. is more than seven digits.
3) Obtain D_2 and H_1 corresponding to D_1 from Table 5-3-1.
   Example: If D_1 is "77881".
   $D_2 = D_1 - 65536 = 12345$
   $H_1 = FE$

D_1 (Decimal)	D_2 (Decimal)	H_1 (Hexadecimal) (Service model code)
000001 to 065535	D_1	FE
065536 to 131071	D_1–65536	FE
131072 to 196607	D_1–131072	FE

Table 5-3-2.

4) Input H_1 to page: 8, address: 91. (Model code input)
   Example: If H_1 is "FE".
   Select page: 8, address: 91, set data: FE, and press the PAUSE button.
5) Obtain the maximum decimal not exceeding D_2 from Table 5-3-2, and take this as D_3.
   Example: If D_2 is "12345".
   $D_3 = 12288$
6) Obtain the hexadecimal corresponding to D_3 from Table 5-3-2, and take this as H_3.
   Example: If D_3 is "12288".
   $H_3 = 3000$
7) Obtain the difference D_4 between D_2 and D_3. (Decimal calculation, $0 \leqq D_4 \leqq 255$)
   $D_4 = D_2 - D_3$
   Example: If D_2 is "12345" and D_3 is "12288".
   $D_4 = 12345 - 12288 = 57$
8) Convert D_4 to hexadecimal, and take this as H_4.
   (Refer to "Hexadecimal-decimal conversion table" in "5-4. Service Mode".)
   Example: If D_4 is "57".
   $H_4 = 39$
9) Input the upper 2 digits of H_3 to page: 8, address: 92.
   Example: If H_3 is "3000".
   Select page: 8, address: 92, set data: 30, and press the PAUSE button.
10) Input H_4 to page: 8, address: 93.
    Example: If H_4 is "39".
    Select page: 8, address: 93, set data: 39, and press the PAUSE button.
11) Select page: 0, address: 01, and set data: 00.

Decimal (D_3)	Hexa-decimal (H_3)	Decimal (D_3)	Hexa-decimal (H_3)	Decimal (D_3)	Hexa-decimal (H_3)	Decimal (D_3)	Hexa-decimal (H_3)	Decimal (D_3)	Hexa-decimal (H_3)	Decimal (D_3)	Hexa-decimal (H_3)	Decimal (D_3)	Hexa-decimal (H_3)	Decimal (D_3)	Hexa-decimal (H_3)
0	0000	8192	2000	16384	4000	24576	6000	32768	8000	40960	A000	49152	C000	57344	E000
256	0100	8448	2100	16640	4100	24832	6100	33024	8100	41216	A100	49408	C100	57600	E100
512	0200	8704	2200	16896	4200	25088	6200	33280	8200	41472	A200	49664	C200	57856	E200
768	0300	8960	2300	17152	4300	25344	6300	33536	8300	41728	A300	49920	C300	58112	E300
1024	0400	9216	2400	17408	4400	25600	6400	33792	8400	41984	A400	50176	C400	58368	E400
1280	0500	9472	2500	17664	4500	25856	6500	34048	8500	42240	A500	50432	C500	58624	E500
1536	0600	9728	2600	17920	4600	26112	6600	34304	8600	42496	A600	50688	C600	58880	E600
1792	0700	9984	2700	18176	4700	26368	6700	34560	8700	42752	A700	50944	C700	59136	E700
2048	0800	10240	2800	18432	4800	26624	6800	34816	8800	43008	A800	51200	C800	59392	E800
2304	0900	10496	2900	18688	4900	26880	6900	35072	8900	43264	A900	51456	C900	59648	E900
2560	0A00	10752	2A00	18944	4A00	27136	6A00	35328	8A00	43520	AA00	51712	CA00	59904	EA00
2816	0B00	11008	2B00	19200	4B00	27392	6B00	35584	8B00	43776	AB00	51968	CB00	60160	EB00
3072	0C00	11264	2C00	19456	4C00	27648	6C00	35840	8C00	44032	AC00	52224	CC00	60416	EC00
3328	0D00	11520	2D00	19712	4D00	27904	6D00	36096	8D00	44288	AD00	52480	CD00	60672	ED00
3584	0E00	11776	2E00	19968	4E00	28160	6E00	36352	8E00	44544	AE00	52736	CE00	60928	EE00
3840	0F00	12032	2F00	20224	4F00	28416	6F00	36608	8F00	44800	AF00	52992	CF00	61184	EF00
4096	1000	12288	3000	20480	5000	28672	7000	36864	9000	45056	B000	53248	D000	61440	F000
4352	1100	12544	3100	20736	5100	28928	7100	37120	9100	45312	B100	53504	D100	61696	F100
4608	1200	12800	3200	20992	5200	29184	7200	37376	9200	45568	B200	53760	D200	61952	F200
4864	1300	13056	3300	21248	5300	29440	7300	37632	9300	45824	B300	54016	D300	62208	F300
5120	1400	13312	3400	21504	5400	29696	7400	37888	9400	46080	B400	54272	D400	62464	F400
5376	1500	13568	3500	21760	5500	29952	7500	38144	9500	46336	B500	54528	D500	62720	F500
5632	1600	13824	3600	22016	5600	30208	7600	38400	9600	46592	B600	54784	D600	62976	F600
5888	1700	14080	3700	22272	5700	30464	7700	38656	9700	46848	B700	55040	D700	63232	F700
6144	1800	14336	3800	22528	5800	30720	7800	38912	9800	47104	B800	55296	D800	63488	F800
6400	1900	14592	3900	22784	5900	30976	7900	39168	9900	47360	B900	55552	D900	63744	F900
6656	1A00	14848	3A00	23040	5A00	31232	7A00	39424	9A00	47616	BA00	55808	DA00	64000	FA00
6912	1B00	15104	3B00	23296	5B00	31488	7B00	39680	9B00	47872	BB00	56064	DB00	64256	FB00
7168	1C00	15360	3C00	23552	5C00	31744	7C00	39936	9C00	48128	BC00	56320	DC00	64512	FC00
7424	1D00	15616	3D00	23808	5D00	32000	7D00	40192	9D00	48384	BD00	56576	DD00	64768	FD00
7680	1E00	15872	3E00	24064	5E00	32256	7E00	40448	9E00	48640	BE00	56832	DE00	65024	FE00
7936	1F00	16128	3F00	24320	5F00	32512	7F00	40704	9F00	48896	BF00	57088	DF00	65280	FF00

Table 5-3-3.

3-3. SERVO AND RF SYSTEM ADJUSTMENT

Before perform the servo and RF system adjustments, check that the specified value of "54 MHz Origin Oscillation Adjustment" of "CAMERA SYSTEM ADJUSTMENT" is satisfied.
And check that the data of page: 0, address: 10 is "00". If not, set data: 00 to this address.

Adjusting Procedure:

1. CAP FG duty adjustment
2. PLL f0 & LPF f0 adjustment
3. Switching position adjustment
4. AGC center level and APC & AEQ adjustment
5. PLL f0 & LPF f0 fine adjustment

1. Cap FG Duty Adjustment (VC-281 board) RadarW

Set the Cap FG signal duty cycle to 50% to establish an appropriate capstan servo. If deviated, the uneven rotation of capstan and noise can occur.

Measurement Point	Display data of page: 3, address: 02, 03
Measuring Instrument	Adjustment remote commander
Adjustment Page	C
Adjustment Address	16
Specified Value	Data of page: 3, address: 02 is "00". Data of page: 3, address: 03 is "00".

Note1: The data of page: 0, address: 10 must be "00".

Adjusting method:

Order	Page	Address	Data	Procedure
1				Close the cassette compartment without inserting a cassette.
2	0	01	01	Set the data.
3	3	01	1B	Set the data, and press PAUSE button.
4	3	02		Check that the data changes in the following order. "1B" → "2B" → "00"
5	3	03		Check that the data is "00". (Note2)
6	0	01	00	Set the data.

Note2: If the data is "01", adjustment has errors or the mechanism deck is defective.

2. PLL f0 & LPF f0 Adjustment (VC-281 board) RadarW

Mode	VTR stop
Measurement Point	Display data of page: 3, address: 02, 03
Measuring Instrument	Adjustment remote commander
Adjustment Page	C
Adjustment Address	1F, 20, 22, 29
Specified Value	Data of page: 3, address: 02 is "00". Data of page: 3, address: 03 is "00".

Note1: The data of page: 0, address: 10 must be "00".

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	C	21	DC	Set the data, and press PAUSE button.
3	3	01	30	Set the data, and press PAUSE button.
4	3	02		Check that the data changes to "00" with in 5 sec. (Note2)
5	3	03		Check that the data is "00". (Note2)
6	0	01	00	Set the data.

Note2: If it isn't satisfied, select page: C, address: 21, set the following data, and press the PAUSE button, and repeat steps 3 to 5.

	Setting data
When the data of page: C, address: 21 is "DC".	E0
When the data of page: C, address: 21 is "E0".	D8
When the data of page: C, address: 21 is "D8".	E4
When the data of page: C, address: 21 is "E4"	D4

There are errors when it isn't satisfied even if the above treatment is done.
If bit2, bit3, bit4, bit5 or bit 6 of the data of page: 3, address: 03 is "1", there are errors. For the error contents, see the following table. (For the bit values, refer to "5-4. SERVICE MODE", "4-3. 3. Bit value discrimination".)

Bit value of page: 3, address: 03 data	Error contents
bit 2 = 1 or bit 3 = 1	PLL f0 fine adjustment is defective
bit 4 = 1 or bit 5 = 1	PLL f0 adjustment is defective
bit 6 = 1	LPF f0 is defective

3. Switching Position Adjustment (VC-281 board) RadarW

To obtain normal playback waveform output during the Digital8 playback mode, adjust the switching position.

Mode	VTR playback
Signal	SW/OL reference tape (XH2-3)
Measurement Point	Display data of page: 3, address: 02, 03
Measuring Instrument	Adjustment remote commander
Adjustment Page	C
Adjustment Address	10, 11, 12, 13
Specified Value	Data of page: 3, address: 02 is “00”. Data of page: 3, address: 03 is “00”.

Note1: The data of page: 0, address: 10 must be “00”.

Adjusting method:

Order	Page	Address	Data	Procedure
1				Insert the SW/OL reference tape and enter the VTR STOP mode.
2	0	01	01	Set the data.
3	C	10	EE	Set the data, and press PAUSE button.
4	3	21		Check that the data is “02”. (Note2)
5	3	01	0D	Set the data, and press PAUSE button.
6	02			Check that the data changes to “00”.
7	3	03		Check that the data is “00”. (Note3)
8	0	01	00	Set the data.

Note2: If the data of page: 3, address: 21 is “72”, the tape top being played. After playing the tape for 1 to 2 seconds, stop it, perform step 5 and higher.
If the data of page: 3, address: 21 is “62”, the tape end being played. After rewinding the tape, perform step 5 and higher.

Note3: If bit 0 of the data is “1”, the EVEN channel is defective. If bit 1 is “1”, the ODD channel is defective. Contents of the defect is written into page: C, addresses: 10 and 12. See the following table. (For the bit values, refer to “5-4. SERVICE MODE”, “4-3. 3. Bit value discrimination”.) If bit 3 of the data is “1”, the tape end being played, so rewind the tape and perform the adjustment again.

When the EVEN channel is defective

Data of page: C, address: 10	Contents of defect
EE	Writing into EEPROM (IC2502) is defective
E8	Adjustment data is out of range
E7	No data is returned from IC2101

When the ODD channel is defective

Data of page: C, address: 12	Contents of defect
EE	Writing into EEPROM (IC2502) is defective
E8	Adjustment data is out of range
E7	No data is returned from IC2101

4. AGC Center Level and APC & AEQ Adjustment

Note: The data of page: 0, address: 10 must be “00”.

4-1. Preparations before adjustments

Mode	Camera recording
Subject	Arbitrary

Adjusting method:

Order	Page	Address	Data	Procedure
1	7	30	80	Set the data.
2				Record the camera signal for three minutes.

4-2. AGC Center Level Adjustment (VC-281 board) RadarW

Mode	Playback
Signal	Recorded signal at “Preparations before adjustments”
Measurement Point	Pin ⑳ of CN1002 (RF MON) (Note1) Ext. trigger: Pin ⑰ of CN1002 (SWP)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	1E
Specified Value	Data of page: 3, address: 02 is “00”. Data of page: 3, address: 03 is “00”.

Note1: Connect a 75Ω resistor between Pin ⑳ and Pin ⑲ (GND) of CN1002.
75Ω resistor (Parts code: 1-247-804-11)

Adjusting method:

Order	Page	Address	Data	Procedure
1				Playback the recorded signal at “Preparations before adjustments”
2	0	01	01	Set the data.
3	3	33	08	Set the data.
4				Confirm that the playback RF signal is stable. (Fig. 5-3-4.)
5	3	01	23	Set the data, and press PAUSE button.
6	3	02		Check that the data is “00”.
7	3	03		Check that the data is “00”. (Note2)
8				Perform “APC & AEQ Adjustment”.

Note2: If the data of page: 3, address: 03 is other than “00”, adjustment has errors. (Take an appropriate remedial measures according to the errors referring to the following table.)

Data	Contents of defect
20	Perform re-adjustment. (Note 3)
30	The machine is defective
40	Perform re-adjustment. (Note 3)
50	The machine is defective

Note3: If this data is displayed twice successively, the machine is defective.

4-3. APC & AEQ Adjustment (VC-281 board) RadarW

Mode	Playback
Signal	Recorded signal at “Preparations before adjustments”
Measurement Point	Pin ⑳ of CN1002 (RF MON) (Note1) Ext. trigger: Pin ⑰ of CN1002 (SWP)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	18, 19, 1B, 1C, 21, 2C
Specified Value	Data of page: 3, address: 02 is “00”. Data of page: 3, address: 03 is “00”.

Note1: Connect a 75Ω resistor between Pin ⑳ and Pin ⑲ (GND) of CN1002.
75Ω resistor (Parts code: 1-247-804-11)

Note2: The “AGC Center Level Adjustment” must have already been completed before starting this adjustment.

Adjusting method:

Order	Page	Address	Data	Procedure
1				Playback the recorded signal at “Preparations before adjustments”
2	0	01	01	Set the data.
3	3	33	08	Set the data.
4				Confirm that the playback RF signal is stable. (Fig. 5-3-4.)
5	3	01	07	Set the data, and press PAUSE button.
6	3	02		Check that the data changes from “07” to “00” in about 20 seconds after pressing PAUSE button.
7	3	03		Check that the data is “00”. (Note3)
8				Perform “Processing after Completing Adjustments”.

Note3: If the data is other than “00”, adjustment has errors. Take an appropriate remedial measures according to the errors referring to the following table.

Data	Contents of defect
20	Perform re-adjustment. (Note 4)
30	The machine is defective
50	Perform re-adjustment. (Note 4)
60	The machine is defective
80	The machine is defective

Note4: If this data is displayed twice successively, the machine is defective.

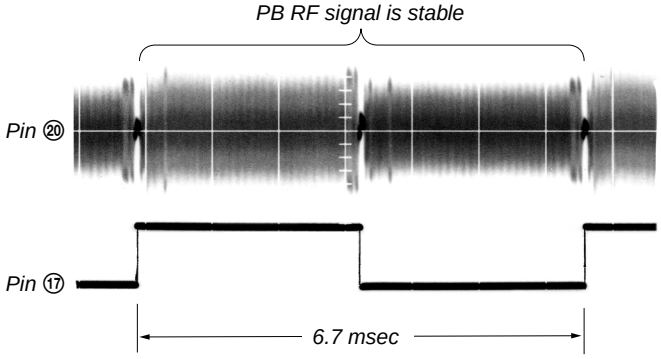


Fig. 5-3-4.

4-4. Processing after Completing Adjustments

Order	Page	Address	Data	Procedure
1	7	30	00	Set the data.
2	3	33	00	Set the data.
3	0	01	00	Set the data.

5. PLL f_0 & LPF f_0 Fine Adjustment (VC-281 board) RadarW

Mode	VTR stop
Signal	Arbitrary
Measurement Point	Display data of page: 3, address: 02, 03
Measuring Instrument	Adjustment remote commander
Adjustment Page	C
Adjustment Address	1F, 20, 22, 29
Specified Value	Data of page: 3, address: 02 is “00”. Data of page: 3, address: 03 is “00”.

Note1: The data of page: 0, address: 10 must be “00”.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	3	01	30	Set the data, and press PAUSE button.
3	3	02		Check that the data changes to “00” with in 5 sec. (Note2)
4	3	03		Check that the data is “00”. (Note3)
5	0	01	00	Set the data.

Note2: If it isn’t satisfied, there are errors.

Note3: If the data of page: 3, address: 03 is other than “00”, there are errors. For the error contents, see the following table. (For the bit values, refer to “5-4. SERVICE MODE”, “4-3. 3. Bit value discrimination”.)

Bit value of page: 3, address: 03	Error contents
bit 2 = 1 or bit 3 = 1	PLL f_0 fine adjustment is defective
bit 4 = 1 or bit 5 = 1	PLL f_0 adjustment is defective
bit 6 = 1	LPF f_0 is defective

3-4. VIDEO SYSTEM ADJUSTMENTS

Note: Before perform the video system adjustments, check that the specified value of "54 MHz Origin Oscillation Adjustment" of "CAMERA SYSTEM ADJUSTMENT" is satisfied.
And check that the data of page: 0, address: 10 is "00". If not, set data: 00 to this address.

1. Chroma BPF f_0 Adjustment (VA-117 board)

Set the center frequency of IC4101 chroma band-pass filter.

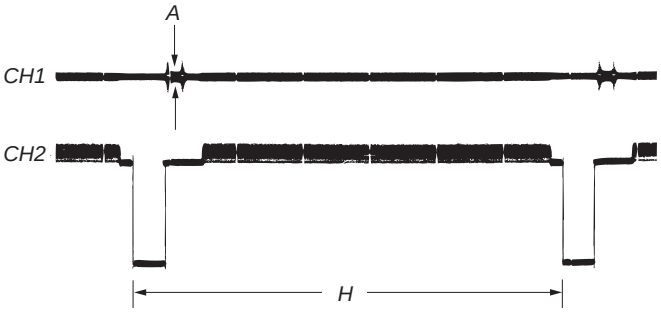
Mode	Camera
Subject	Arbitrary
Measurement Point	CH1: Chroma signal terminal of S VIDEO jack (75Ω terminated) CH2: Y signal terminal of S VIDEO jack (75Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	28
Specified Value	A = 100mVp-p or less B = 200mVp-p or more

Note: The data of page: 0, address: 10 must be "00".

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2				Check that the burst signal (B) is output to the chroma signal terminal of S VIDEO jack.
3	3	0C	04	Set the data, and press PAUSE button.
4	C	28		Change the data for minimum amplitude of the burst signal level (A). (The data should be "00" to "0F".)
5	C	28		Press PAUSE button.
6	3	0C	00	Set the data, and press PAUSE button.
7				Check that the burst signal level (B) satisfies the specified value.
8	0	01	00	Set the data.

When the data of page: 3, address: 0C, is 04:



When the data of page: 3, address: 0C, is 00:

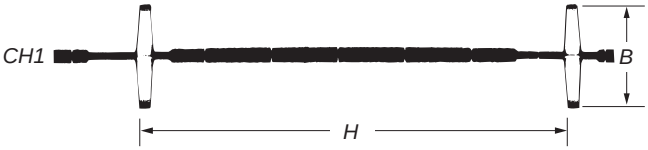


Fig. 5-3-5.

2. S VIDEO OUT Y Level Adjustment (VC-281 board)

Mode	Camera
Subject	Arbitrary
Measurement Point	Y signal terminal of S VIDEO jack (75Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	25
Specified Value	A = 1000 ± 14mV

Note: The data of page: 0, address: 10 must be "00".

Switch setting:
DEMO MODE (Menu setting) ..... OFF

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	3	0C	02	Set the data, and press PAUSE button.
3	C	25		Change the data and set the Y signal level (A) to the specified value.
4	C	25		Press PAUSE button.
5	3	0C	00	Set the data, and press PAUSE button.
6	0	01	00	Set the data.

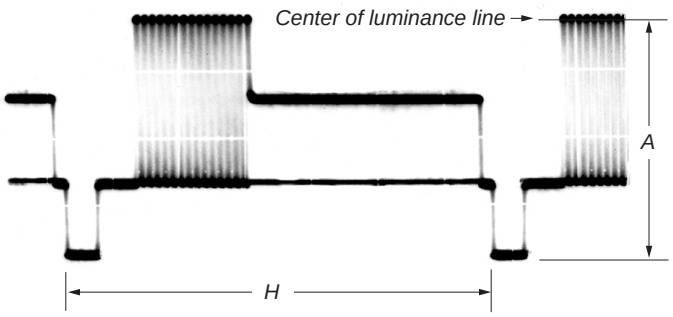


Fig. 5-3-6.

3. S VIDEO OUT Chroma Level Adjustment (VC-281 board)

Mode	Camera
Subject	Arbitrary
Measurement Point	Chroma signal terminal of S VIDEO jack (75Ω terminated) External trigger: Y signal terminal of S VIDEO jack
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	26, 27
Specified Value	Cr level: A = 700 ± 14mV Cb level:B = 700 ± 14mV Burst level: C = 300 ± 6mV

Note: The data of page: 0, address: 10 must be “00”.

Switch setting:
DEMO MODE (Menu setting) ..... OFF

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	3	0C	02	Set the data, and press PAUSE button.
3	C	26		Change the data and set the Cr signal level (A) to the specified value.
4	C	26		Press PAUSE button.
5	C	27		Change the data and set the Cb signal level (B) to the specified value.
6	C	27		Press PAUSE button.
7				Check that the burst signal level (C) is satisfied the specified value.
8	3	0C	00	Set the data, and press PAUSE button.
9	0	01	00	Set the data.

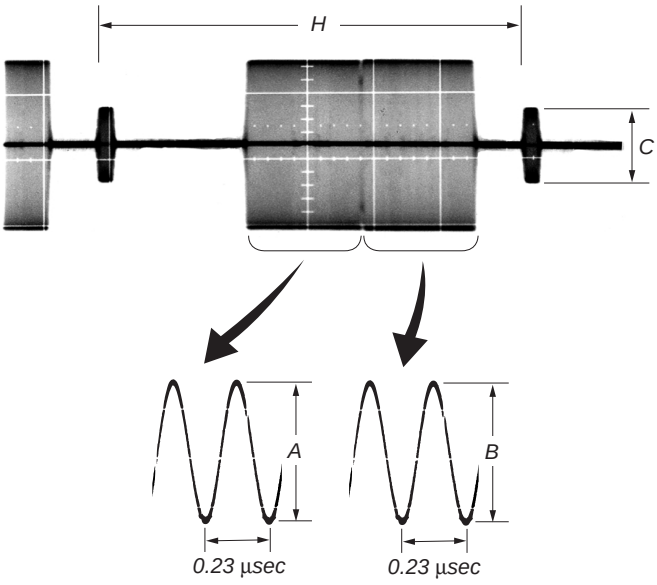


Fig. 5-3-7.

4. VIDEO OUT Y, Chroma Level Check (VC-281 board)

Mode	Camera
Subject	Arbitrary
Measurement Point	Video terminal of AUDIO VIDEO jack (75Ω terminated)
Measuring Instrument	Oscilloscope
Specified Value	Sync level: A = 300 ± 18mV Burst level: B = 300 ± 18mV

Note: The data of page: 0, address: 10 must be “00”.

Switch setting:
DEMO MODE (Menu setting) ..... OFF

Adjusting method:

Order	Page	Address	Data	Procedure
1	3	0C	02	Set the data, and press PAUSE button.
2				Check that the sync signal level (A) satisfies the specified value.
3				Check that the burst signal level (B) satisfies the specified value.
4	3	0C	00	Set the data, and press PAUSE button.

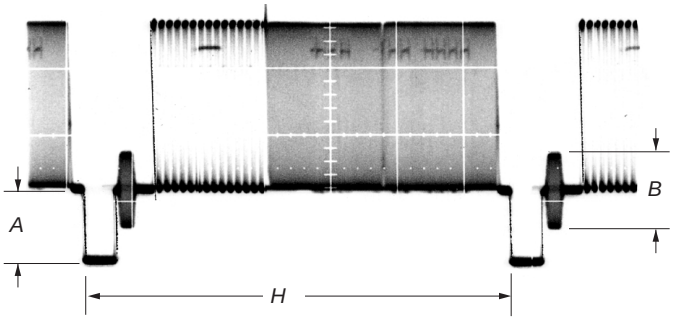


Fig. 5-3-8.

3-5. AUDIO SYSTEM ADJUSTMENTS

[Connection of Audio System Measuring Devices]

Connect the audio system measuring devices as shown in Fig. 5-3-9.

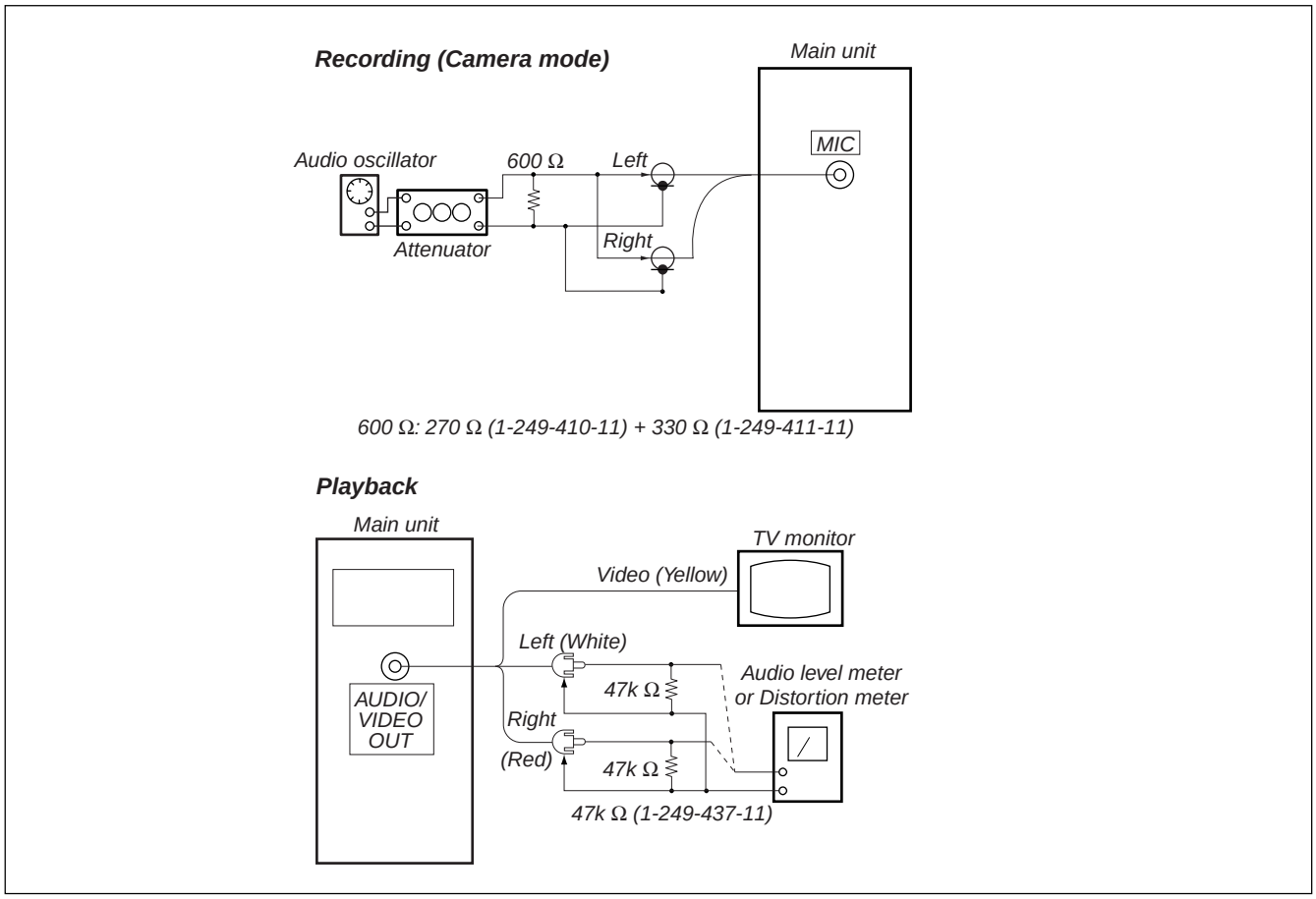


Fig. 5-3-9.

1. Playback Level Check

Mode	VTR playback
Signal	Alignment tape: For audio operation check (XH5-3P)
Measurement Point	Audio left or right terminal of AUDIO VIDEO jack
Measuring Instrument	Audio level meter and frequency counter
Specified Value	32 kHz mode: 1 kHz, +3.0 ± 2.0dBs 48 kHz mode: 1 kHz, +3.0 ± 2.0dBs 44.1 kHz mode: The 7.35kHz signal level during EMP OFF is +2.0 ± 2.0dBs. The 7.35kHz signal level during EMP ON is –6 ± 2 dB from the signal level during EMP OFF.

Checking Method:

1) Check that the playback signal level is the specified value.

2. Overall Level Characteristics Check

Mode	Camera recording and playback
Signal	400Hz, –66 dBs signal: MIC jack left and right
Measurement Point	Audio left or right terminal of AUDIO VIDEO jack
Measuring Instrument	Audio level meter
Specified Value	–7.5 ± 3.0dBs

Checking Method:

1) Input the 400Hz, –66dBs signal in the MIC jack.
2) Record in the camera mode.
3) Playback the recorded section.
4) Check that the 400Hz signal level is the specified value.

3. Overall Distortion Check

Mode	Camera recording and playback
Signal	400Hz, –66dBs signal: MIC jack left and right
Measurement Point	Audio left or right terminal of AUDIO VIDEO jack
Measuring Instrument	Audio distortion meter
Specified Value	Below 0.4% (200Hz to 6kHz BPF ON)

Checking Method:

1) Input the 400Hz, –66dBs signal in the MIC jack.
2) Record in the camera mode.
3) Playback the recorded section.
4) Check that the distortion is the specified value.

4. Overall Noise Level Check

Mode	Camera recording and playback
Signal	No signal: Insert a shorting plug in the MIC jack
Measurement Point	Audio left or right terminal of AUDIO VIDEO jack
Measuring Instrument	Audio level meter
Specified Value	Below –45dBs (IHF-A filter ON, 20kHz LPF ON)

Checking Method:

1) Insert a shorting plug in the MIC jack.
2) Record in the camera mode.
3) Playback the recorded section.
4) Check that the noise level is the specified value.

5. Overall Separation Check

Mode	Camera recording and playback
Signal	400Hz, –66dBs signal: MIC jack <right> [left] (Connect the MIC jack <left> [right] to GND)
Measurement Point	Audio <left> [right] terminal of AUDIO VIDEO jack
Measuring Instrument	Audio level meter
Specified Value	Below –40dBs (IHF-A filter ON)

< > : Left channel check
[ ] : Right channel check

Checking Method:

1) Input the 400Hz, –66dBs signal in the <right> [left] terminal of the MIC jack only.
2) Record in the camera mode.
3) Playback the recorded section.
4) Check that the signal level of the audio <left> [right] terminal is the specified value.

5-4. SERVICE MODE

4-1. ADJUSTMENT REMOTE COMMANDER

The adjustment remote commander is used for changing the calculation coefficient in signal processing, EVR data, etc. The adjustment remote commander performs bi-directional communication with the unit using the remote commander signal line (LANC). The resultant data of this bi-directional communication is written in the non-volatile memory.

1. Using the adjustment remote commander

1) Connect the adjustment remote commander to the LANC terminal.
2) Set the HOLD switch of the adjustment remote commander to "HOLD" (SERVICE position). If it has been properly connected, the LCD on the adjustment remote commander will display as shown in Fig. 5-4-1.

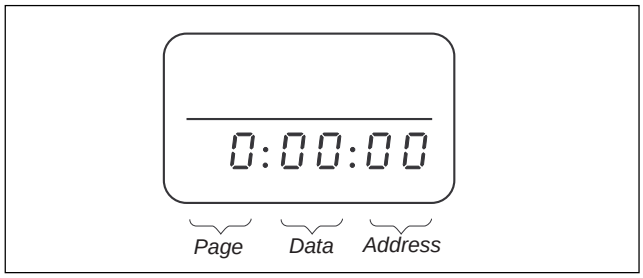


Fig. 5-4-1

3) Operate the adjustment remote commander as follows.
   - Changing the page
     The page increases when the EDIT SEARCH+ button is pressed, and decreases when the EDIT SEARCH– button is pressed. There are altogether 19 pages, from 0 to F, 1B, 1E, 1F. (Note)

Hexadecimal notation	0 1 2 3 4 5 6 7 8 9 A B C D E F
LCD Display	0 1 2 3 4 5 6 7 8 9 A b c d E F
Decimal notation conversion value	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

   - Changing the address
     The address increases when the FF (►►) button is pressed, and decreases when the REW (◄◄) button is pressed. There are altogether 256 addresses, from 00 to FF.
   - Changing the data (Data setting)
     The data increases when the PLAY (►) button is pressed, and decreases when the STOP (■) button is pressed. There are altogether 256 data, from 00 to FF.
   - Writing the adjustment data
     The PAUSE button must be pressed to write the adjustment data (8, A, B, C, D, E, F, 1B, 1E, 1F page) in the nonvolatile memory. (The new adjusting data will not be recorded in the nonvolatile memory if this step is not performed.)
4) After completing all adjustments, turn off the main power supply once.

Note: When reading or writing the 1B, 1E, 1F page data, select page: 0, address: 10, and set data: 01, then select B, E or F page. The 1B, 1E or 1F page can be chosen by this data setting.
After reading or writing, reset the data of page: 0, address: 10 to "00".

2. Precautions upon using the adjustment remote commander

Mishandling of the adjustment remote commander may erase the correct adjustment data at times. To prevent this, it is recommended that all adjustment data be noted down before beginning adjustments and new adjustment data after each adjustment.

4-2. DATA PROCESS

The calculation of the DDS display and the adjustment remote commander display data (hexadecimal notation) are required for obtaining the adjustment data of some adjustment items. In this case, after converting the hexadecimal notation to decimal notation, calculate and convert the result to hexadecimal notation, and use it as the adjustment data. Indicates the hexadecimal-decimal conversion table.

Hexadecimal-decimal Conversion Table

	Lower digit of hexadecimal / Upper digit of hexadecimal	0	1	2	3	4	5	6	7	8	9	A (A)	B (b)	C (c)	D (d)	E (E)	F (F)
	0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
	2	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
	3	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
	4	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
	5	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
	6	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
	7	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
	8	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
	9	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
	A (A)	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
①	B (b)	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
	C (c)	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
	D (d)	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
	E (E)	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
	F (F)	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

② (above the D column)

Note : The characters shown in the parenthesis ( ) shown the display on the adjustment remote commander.

(Example) If the DDS display or the adjustment remote commander shows BD (bd);
Because the upper digit of the adjustment number is B (b), and the lower digit is D (d), the meeting point "189" of ① and ② in the above table is the corresponding decimal number.

Table. 5-4-1.

4-3. SERVICE MODE

Note: Before performing the adjustments, check the data of page: 0, address: 10 is "00". If not, set data: 00 to this address.

1. Setting the Test Mode

Page D	Address 10

Data	Function
00	Normal
01	Forced camera power ON
02	Forced VTR power ON
03	Forced camera + VTR power ON
05	Forced memory power ON

- Before setting the data , select page: 0, address: 01, and set data: 01.
- For page D, the data set is recorded in the non-volatile memory by pressing the PAUSE button of the adjustment remote commander. In this case, take note that the test mode will not be exited even when the main power is turned off.
- After completing adjustments/repairs, be sure to return the data of this address to 00, and press the PAUSE button of the adjustment remote commander.
  Select page: 0, address: 01, and set data: 00.

2. Emergence Memory Address

Page C	Address F4 to FF

Address	Contents
F4	EMG code when first error occurs
F6	Upper: MSW code when shift starts when first error occurs Lower: MSW code when first error occurs
F7	Lower: MSW code to be moved when first error occurs
F8	EMG code when second error occurs
FA	Upper: MSW code when shift starts when second error occurs Lower: MSW code when second error occurs
FB	Lower: MSW code to be moved when second error occurs
FC	EMG code when last error occurs
FE	Upper: MSW code when shift starts when last error occurs Lower: MSW code when last error occurs
FF	Lower: MSW code to be moved when last error occurs

When no error occurs in this unit, data "00" is written in the above addresses (F4 to FF). when first error occurs in the unit, the data corresponding to the error is written in the first emergency address (F4 to F7). In the same way, when the second error occurs, the data corresponding to the error is written in the second emergency address (F8 to FB). Finally, when the last error occurs, the data corresponding to the error is written in the last emergency address (FC to FF).

Note: After completing adjustments, be sure to initialize the data of addresses F4 to FF to "00".

Initializing method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 3, address: 01, set data: 37, and press the PAUSE button.
3) Select page: 0, address: 01, and set data: 00.

2-1. EMG Code (Emergency Code)

Codes corresponding to the errors which occur are written in addresses F4, F8 and FC. The type of error indicated by the code are shown in the following table.

Code	Emergency Type
00	No error
10	Loading motor emergency during loading
11	Loading motor emergency during unloading
22	T reel emergency during normal rotation
23	S reel emergency during normal rotation
24	T reel emergency (Short circuit between S reel terminal and T reel terminal)
30	FG emergency at the start up of the capstan
40	FG emergency at the start up of the drum
42	FG emergency during normal rotation of the drum

2-2. MSW Code

MSW when errors occur:

Information on MSW (mode SW) when errors occur

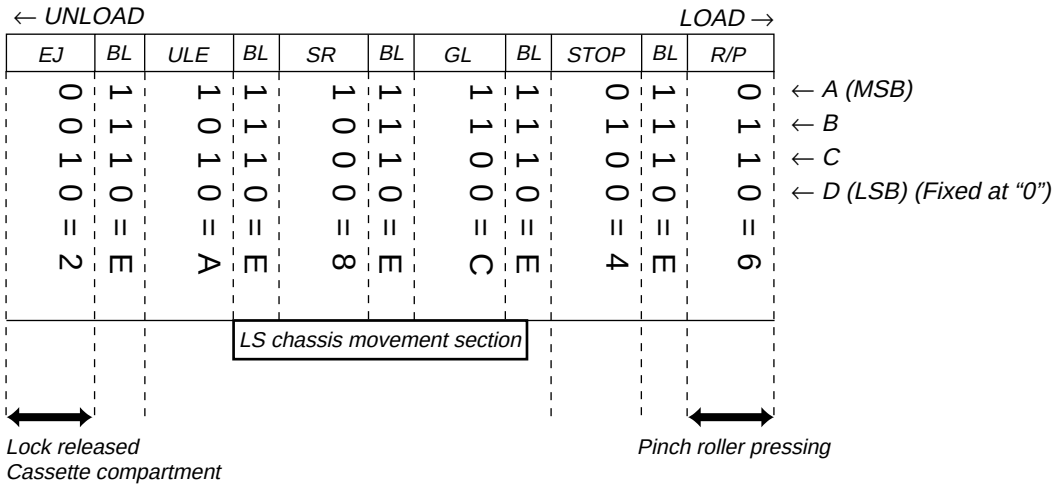
MSW when movement starts:

Information on MSW when movements starts when the mechanism position is moved (When the L motor is moved)

MSW of target of movement:

Information on target MSW of movement when the mechanism position is moved

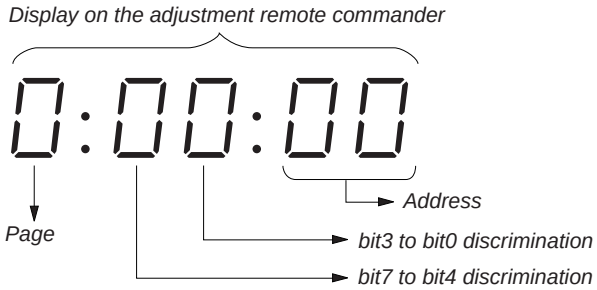
Mechanical Position



Position	Code	Contents
EJ	2	Position at which the cassette component lock is released, at the farthest unload side mechanically at which the mechanism can move no further in the UNLOAD direction.
BL	E	BLANK code, at the boundary between codes.
ULE	A	EJECT completion position. when the cassette is ejected, the mechanism will stop at this position. Cassette IN standby. The guide will start protruding out as the mechanism moves towards the LOAD position.
SR	8	Position at which it is possible to release the S ratchet.
GL	C	Guide loading are performed here.
STOP	4	Stop position in the loading state. The pinch roller separates, the tension regulator returns, and the brake is imposed on both reels.
R/P	6	PB, REC, CUE, REVIEW, PAUSE positions. When pinch roller is pressed, and the tension regulator is ON, the mechanism is operating at this position in modes in which normal images are shown.
NULL	0	Code not existing in the MD. Default value.
	F	Status before finding any mechanism position.

3. Bit value discrimination

Bit values must be discriminated using the display data of the adjustment remote commander for following items. Use the table below to discriminate if the bit value is “1” or “0”.



	Display on the adjustment remote commander	Bit values			
		bit3 or bit7	bit2 or bit6	bit1 or bit5	bit0 or bit4
	0	0	0	0	0
	1	0	0	0	1
	2	0	0	1	0
	3	0	0	1	1
	4	0	1	0	0
	5	0	1	0	1
	6	0	1	1	0
	7	0	1	1	1
Ⓐ	8	1	0	0	0
	9	1	0	0	1
	A (R)	1	0	1	0
	B (b)	1	0	1	1
	C (c)	1	1	0	0
	D (d)	1	1	0	1
Ⓑ	E (E)	1	1	1	0
	F (F)	1	1	1	1

Example: If “8E” is displayed on the adjustment remote commander, the bit values for bit7 to bit4 are shown in the Ⓐ column, and the bit values for bit3 to bit0 are shown in the Ⓑ column.

4. Switch check (1)

Page 7	Address 0E

Note: The data of page: 0, address: 10 must be “00”.

Bit	Function	When bit value=1	When bit value=0
0	POWER SW (VTR MODE SW) (PS-CX2670 block S001)	ON (VCR/PLAYER)	OFF
1	POWER SW (CAM MODE SW) (PS-CX2670 block S001)	ON (CAMERA)	OFF
2	START/STOP SW (PS-CX2670 block S002)	ON	OFF
3	EJECT SW (FP-443 flexible S201)	ON	OFF
4	CC DOWN SW (Mechanism chassis)	ON (DOWN)	OFF (UP)
5	PHOTO FREEZE SW (PS-CX2670 block S071)	ON	OFF
6	POWER SW (PHOTO STBY SW) (PS-CX2670 block S001)	ON (MEMORY)	OFF
7			

Using method:

1) Select page: 7, address: 0E.
2) By discriminating the bit value of display data, the state of the switch can be discriminated.

5. Switch check (2)

Page 7	Address 0C

Note: The data of page: 0, address: 10 must be “00”.

Bit	Function	When bit value=1	When bit value=0
1	MIC jack (MA-409 board J5901)	Used	Not used
2	AUDIO/VIDEO jack (JK-217 board J5302)	Used	Not used
3	S VIDEO jack (JK-217 board J5302)	Used	Not used

Using method:

1) Select page: 7, address: 0C.
2) By discriminating the bit value of display data, the state of the switch can be discriminated.

6. Switch check (3)

Page 3	Address 61

Note: The data of page: 0, address: 10 must be “00”.

Bit	Function	When bit value=1	When bit value=0
6	HEADPHONS jack (MA-409 board J5902)	Used	Not used

Using method:

1) Select page: 3, address: 61.
2) By discriminating the bit value of display data, the state of the switch can be discriminated.

7. Switch check (4)

Page 2	Address 60 to 66

Note: The data of page: 0, address: 10 must be “00”.

Using method:

1) Select page: 2, address: 60 to 66.
2) By discriminating the display data, the pressed key can be discriminated.

Address	Data							
	00 (00 to 0C)	19 (0D to 24)	32 (25 to 3F)	4E (40 to 5D)	6F (5E to 81)	96 (82 to AA)	C1 (AB to D7)	E8 (D8 to FF)
60 (KEY AD0) (IC3101 ⑲)	PHOTO (PHOTO REC) (PS-CX2670) (S071)	EDIT SEARCH + (FP-443) (S202)	EDIT SEARCH – (FP-443) (S203)					No key input
61 (KEY AD1) (IC3101 ⑳)	MPEG PLAY (SH-CX2670) (S101)	MEMORY PLAY (SH-CX2670) (S102)	MEMORY INDEX (SH-CX2670) (S107)	MEMORY DELETE (SH-CX2670) (S112)	MEMORY MIX (SH-CX2670) (S113)	MEMORY + (SH-CX2670) (S108)	MEMORY – (SH-CX2670) (S103)	No key input
62 (KEY AD2) (IC3101 ㉑)	PB ZOOM (SH-CX2670) (S114)	MENU (SH-CX2670) (S115)	AUDIO DUB (SH-CX2670) (S116)	BACK LIGHT (KP-CX2670) (S100)	EXPOSURE (KP-CX2670) (S101)	PANEL REVERSE (FP-309)		PANEL NORMAL (FP-309)
63 (KEY AD3) (IC3101 ㉕)	REC (SH-CX2670) (S106,111)*1	VOL + (SH-CX2670) (S110)	END SEARCH (SH-CX2670) (S109)	DISPLAY (SH-CX2670) (S104)	VOL – (SH-CX2670) (S105)	PANEL CLOSE (CK-108) (S5207)		PANEL OPEN (CK-108) (S5207)
64 (KEY AD4) (IC3101 ㉖)	STOP (CK-108) (S5201)	REW (CK-108) (S5202)	PLAY (CK-108) (S5204)	FF (CK-108) (S5205)	PAUSE (CK-108) (S5206)	EXECUTE (KP-CX2670) (S103)		No key input
65 (KEY AD5) (IC3101 ㉗)	COLOR SLOW S/ SUPER NS (JK-218) (S5351)							No key input
66 (KEY AD6) (IC3101 ㉘)	FADER (FP-444) (S301)	FOCUS (INFINITY) (FP-444) (S302)	FOCUS (AUTO/MANUAL) (FP-444) (S302)					No key input

*1: DCR-TRV25E/TRV27E

8. Record of Use check (1)

Page 7	Address A7 to A9

Note1: When replacing the drum assembly or the mechanism deck, initialize the data of address: A7 to A9.
Note2: This data will be kept even if the lithium battery (CK-108 board BT5201 of the cabinet (R) assembly) is removed.
Note3: The data of page: 0, address: 10 must be “00”.

Address	Function		Remarks
A7	Drum rotation counted time (BCD code)	Hour (H)	100000th place digit and 10000th place digit of counted time
A8		Hour (M)	1000th place digit and 100th place digit of counted time
A9		Hour (L)	10th place digit and 1st place digit of counted time

Using method:
1) The record of use data is displayed at addresses: A7 to A9.

Initializing method:
1) Select page: 7, address: 00, and set data: 71.
2) Select page: 7, address: 01, set data: 71 and press the PAUSE button.
3) Check that the data of page: 7, address: 02 is “00”.

9. Record of Use check (2)

Page 7	Address C8 to CD

Note1: This data will be kept even if the lithium battery (CK-108 board BT5201 of the cabinet (R) assembly) is removed.
Note2: The data of page: 0, address: 10 must be “00”.

Address	Function		Remarks
C8	User initial power on date (BCD code)	Year	After setting the clock, set the date of power on next.
C9		Month	
CA		Day	
CB	Final condensation occurrence date (BCD code)	Year	
CC		Month	
CD		Day	

Using method:
1) The record of use data is displayed at addresses: C8 to CD.

10. Record of Self-diagnosis check

Page 7	Address B0 to C6

Note1: This data will be kept even if the lithium battery (CK-108 board BT5201 of the cabinet (R) assembly) is removed.
Note2: The data of page: 0, address: 10 must be “00”.

Address	Self-diagnosis code
B0	“Repaired by” code (Occurred 1st time) *1
B1	“Block function” code (Occurred 1st time)
B2	“Detailed” code (Occurred 1st time)
B4	“Repaired by” code (Occurred 2nd time) *1
B5	“Block function” code (Occurred 2nd time)
B6	“Detailed” code (Occurred 2nd time)
B8	“Repaired by” code (Occurred 3rd time) *1
B9	“Block function” code (Occurred 3rd time)
BA	“Detailed” code (Occurred 3rd time)
BC	“Repaired by” code (Occurred 4th time) *1
BD	“Block function” code (Occurred 4th time)
BE	“Detailed” code (Occurred 4th time)
C0	“Repaired by” code (Occurred 5th time) *1
C1	“Block function” code (Occurred 5th time)
C2	“Detailed” code (Occurred 5th time)
C4	“Repaired by” code (Occurred the last time) *1
C5	“Block function” code (Occurred the last time)
C6	“Detailed” code (Occurred the last time)

*1 : “01” → “C”, “03” → “E”

Using method:
1) The past self-diagnosis codes are displayed at addresses: BC to C6. Refer to “SELF-DIAGNOSIS FUNCTION” for detail of the self-diagnosis code.

COVER

SECTION 6
REPAIR PARTS LIST

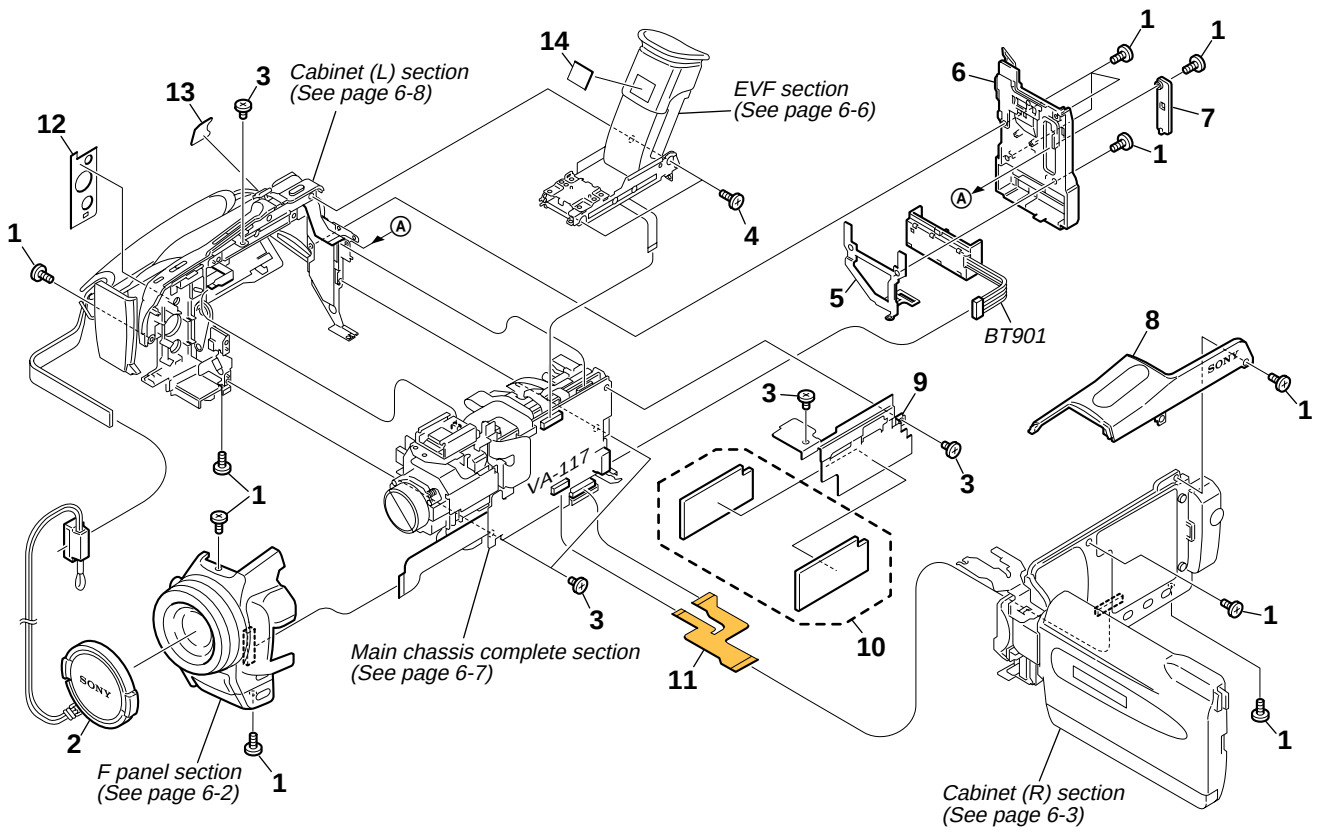
6-1. EXPLODED VIEWS

NOTE:

- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.

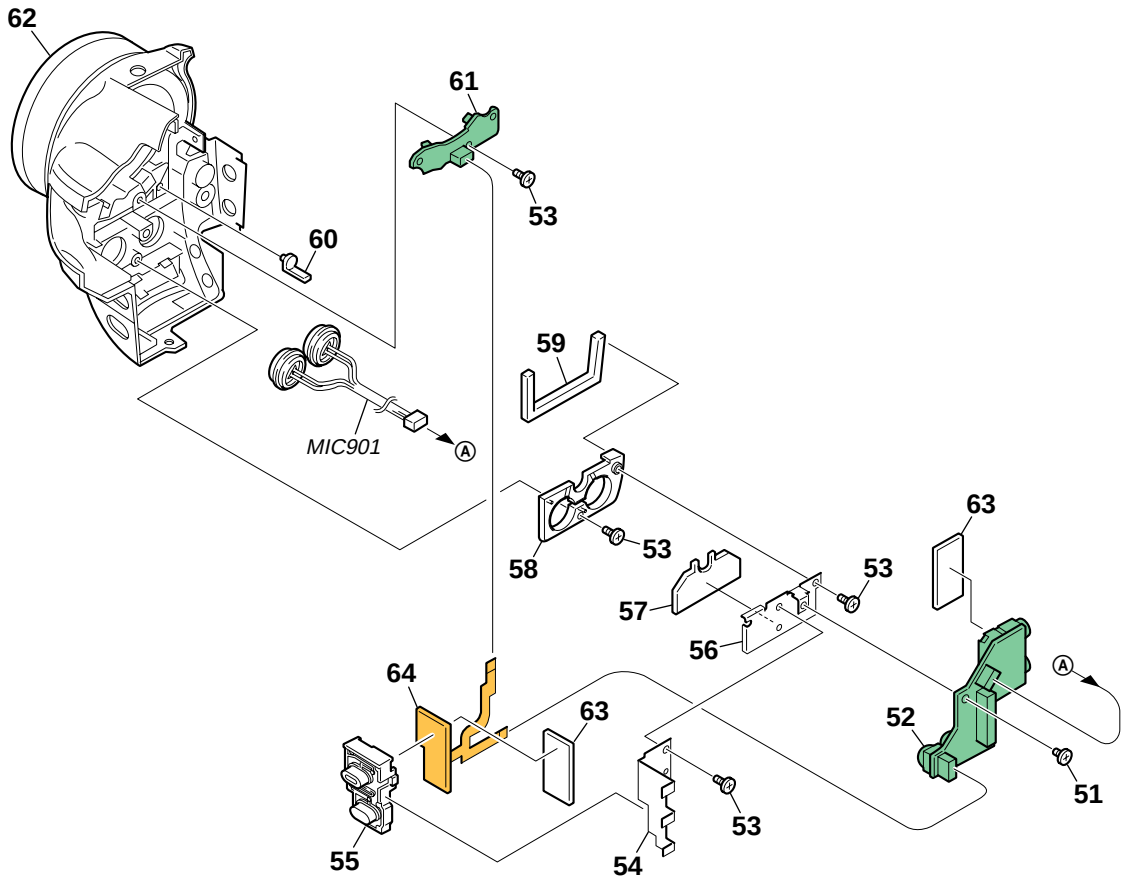
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

6-1-1. OVERALL



Ref. No.	Part No.	Description
1	3-989-735-81	SCREW (M1.7), LOCK ACE, P2
2	X-3950-537-1	CAP ASSY, LENS
3	4-974-725-01	SCREW (M1.7X2.5), P
4	3-713-791-11	SCREW (M1.7X5), TAPPING, P2
5	3-067-024-01	BRACKET (LOWER), STRAP
6	X-3952-229-1	BT PANEL ASSY
7	3-067-025-01	CPC LID
8	X-3952-231-1	TOP CABINET ASSY
9	3-073-852-01	VA HEAT SINK
10	3-073-851-01	VA RADIATION SHEET A
11	1-684-248-11	FP-434 FLEXIBLE BOARD
12	3-073-511-21	PLATE, JACK ORNAMENTAL (TRV24E)
12	3-073-511-31	PLATE, JACK ORNAMENTAL (TRV25E/TRV27E)
13	3-073-502-31	SHEET, POWER (TRV25E/TRV27E)
13	3-073-502-41	SHEET, POWER (TRV24E)
14	3-074-433-01	LABEL, COLOR (VF)
BT901	1-694-772-11	TERMINAL BOARD, BATTERY

6-1-2. FRONT PANEL SECTION

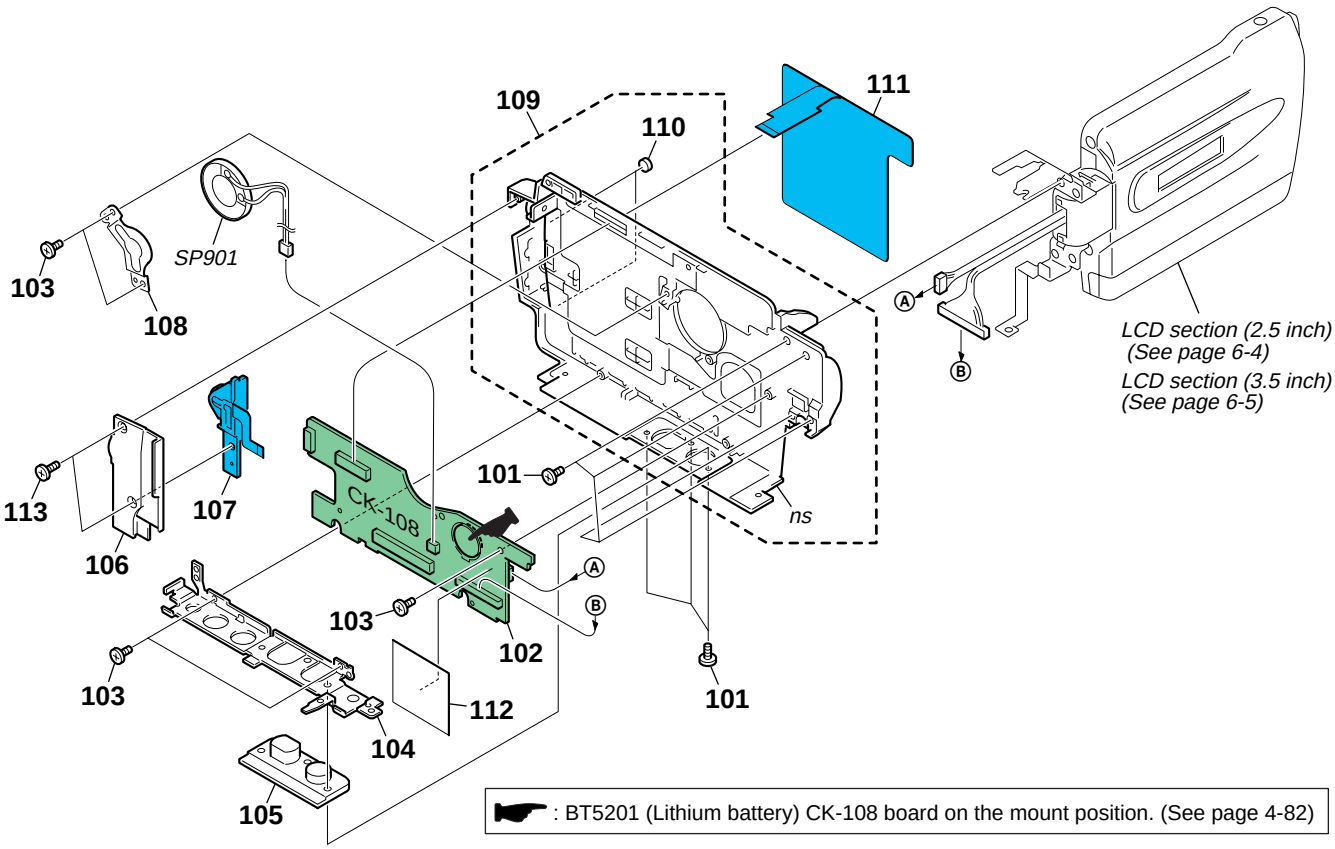


Ref. No.	Part No.	Description
51	4-974-725-01	SCREW (M1.7X2.5), P
52	A-7078-104-A	MA-409 BOARD, COMPLETE
53	3-713-791-51	SCREW (M1.7X3.5), TAPPING, P2
54	3-073-464-01	RETAINER, FOCUS BUTTON
55	3-073-463-01	FOCUS, BUTTON
56	3-073-460-01	RETAINER (2), MICROPHONE
57	3-073-461-01	CUSHION, MICROPHONE RETAINER
58	3-073-459-01	RETAINER (1), MICROPHONE

Ref. No.	Part No.	Description
59	3-074-585-01	CUSHION, MICROPHONE
60	3-073-462-01	LIGHT, TALLY GUIDE
61	A-7078-103-A	FB-219 BOARD, COMPLETE
62	X-3952-402-1	F PANEL ASSY (G)
63	3-075-386-01	CUSHION, JACK
64	1-684-258-21	FP-444 FLEXIBLE BOARD
MIC901	1-542-477-11	MICROPHONE

6-1-3. CABINET (R) SECTION

ns : not supplied



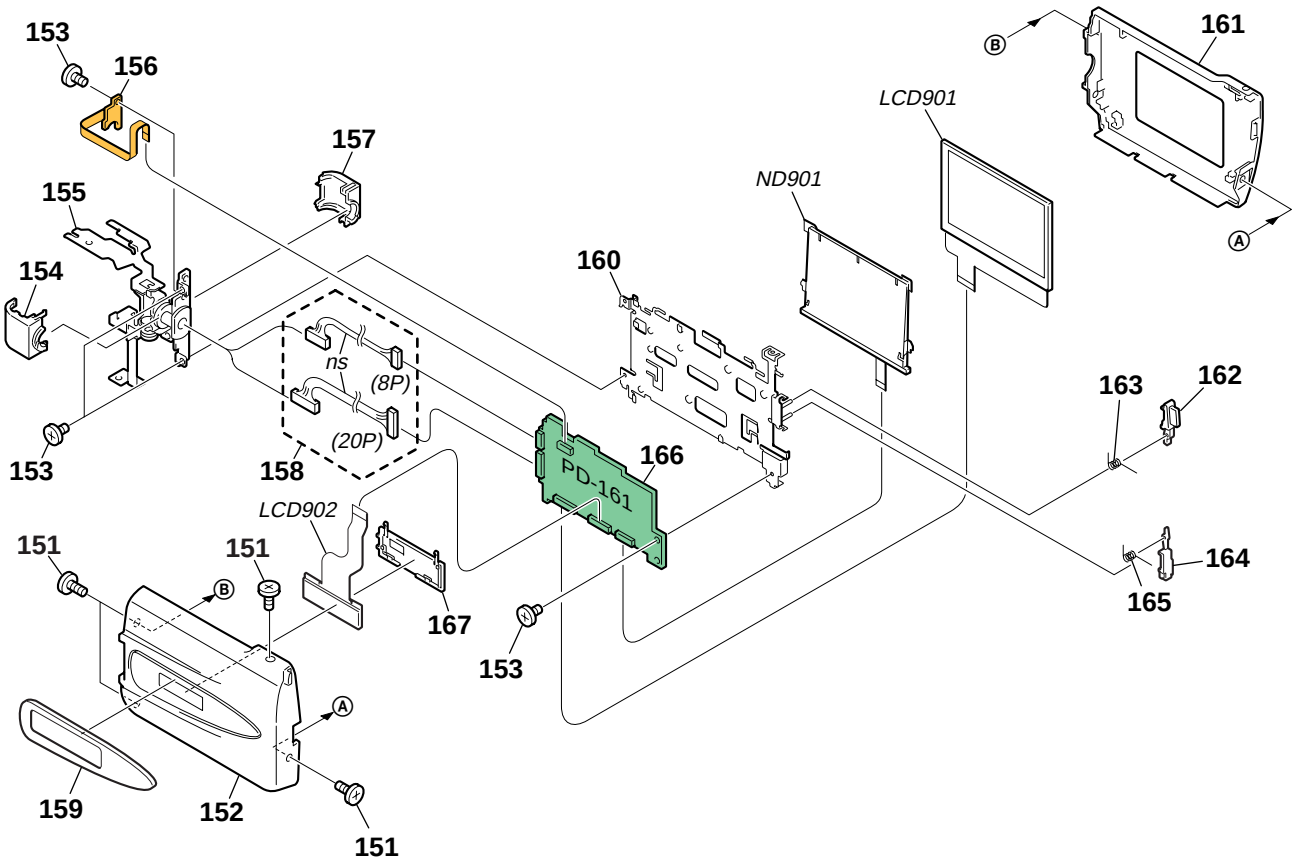
CAUTION :
Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type.

Ref. No.	Part No.	Description
101	3-055-573-01	SCREW (M1.7), LOCK ACE, P2
102	A-7078-105-A	CK-108 BOARD, COMPLETE
103	3-713-791-51	SCREW (M1.7X3.5), TAPPING, P2
104	3-074-072-01	FRAME BOTTOM
105	3-055-257-01	TRIPOD (LARGE)
106	3-073-466-01	BLIND, KURUPON
107	1-477-147-11	SWITCH BLOCK, CONTROL (KP-CX2670)
* 108	X-3950-471-1	RETAINER ASSY, SPEAKER
109	X-3952-407-1	CABINET (R) ASSY 2.5 (TRV24E/TRV25E)

Ref. No.	Part No.	Description
109	X-3952-408-2	CABINET (R) ASSY 3.5 (TRV27E)
110	3-959-978-02	CUSHION, PANEL
111	1-477-149-21	SWITCH BLOCK, CONTROL (SH-CX2670) (TRV25E/TRV27E)
111	1-477-149-31	SWITCH BLOCK, CONTROL (SH-CX2670) (TRV24E)
112	3-074-538-01	RETAINER, P HARNESS
113	3-713-791-11	SCREW (M1.7X5), TAPPING, P2
SP901	1-529-590-11	SPEAKER (2.0CM)

6-1-4. LCD SECTION (2.5INCH) (TRV24E/TRV25E)

ns : not supplied



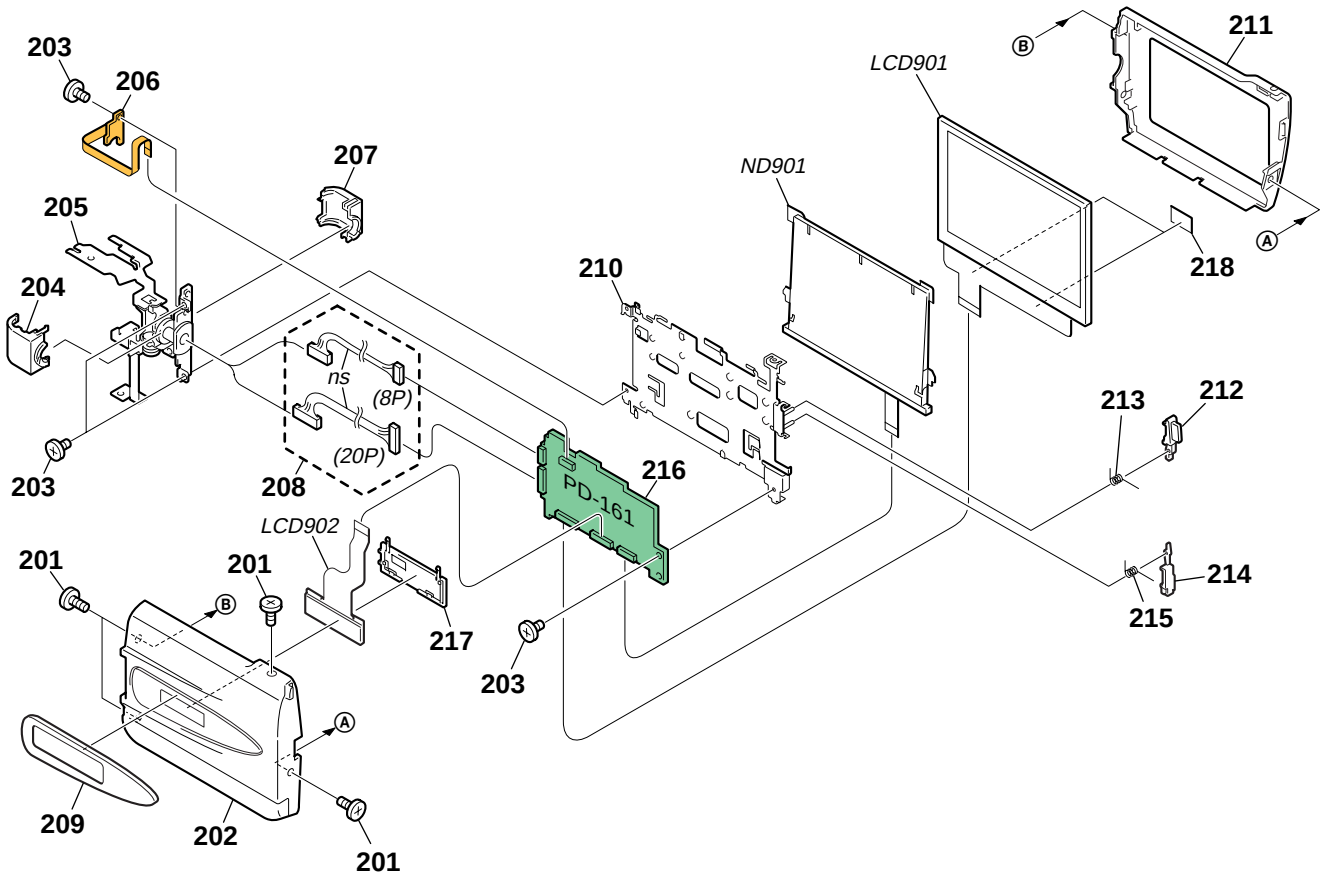
Ref. No.	Part No.	Description
151	3-056-233-21	SCREW (M2), LOCK ACE, P2
152	X-3952-405-1	P CABINET (C) ASSY 2.5
153	4-974-725-01	SCREW (M1.7X2.5), P
154	3-073-468-01	COVER (FRONT), HINGE
155	X-3952-242-2	HINGE ASSY
156	1-684-256-21	FP-442 FLEXIBLE BOARD
157	3-073-469-01	COVER (REAR), HINGE
158	1-961-795-11	HARNESS (PV-138)
159	3-073-488-71	PLATE, P ORNAMENTAL (TRV25E)
159	3-073-488-81	PLATE, P ORNAMENTAL (TRV24E)

Ref. No.	Part No.	Description
160	X-3952-244-1	P FRAME ASSY (2.5)
161	3-073-474-01	P CABINET (M) 2.5
162	3-073-470-01	BUTTON, P OPEN
163	3-073-472-01	SPRING (U), LOCK
164	3-073-471-01	P LOCK
165	3-073-473-01	SPRING (L), LOCK
166	A-7078-106-A	PD-161 (25SH123) BOARD, COMPLETE
167	3-073-467-01	LCD HOLDER
LCD901	1-803-853-21	INDICATOR MODULE LIQUID CRYSTAL
LCD902	A-7096-989-A	INDICATION LCD BLOCK ASSY
⚠ND901	1-518-798-21	TUBE, FLUORESCENT,COLD CATHODE

Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

6-1-5. LCD SECTION (3.5INCH) (TRV27E)

ns : not supplied



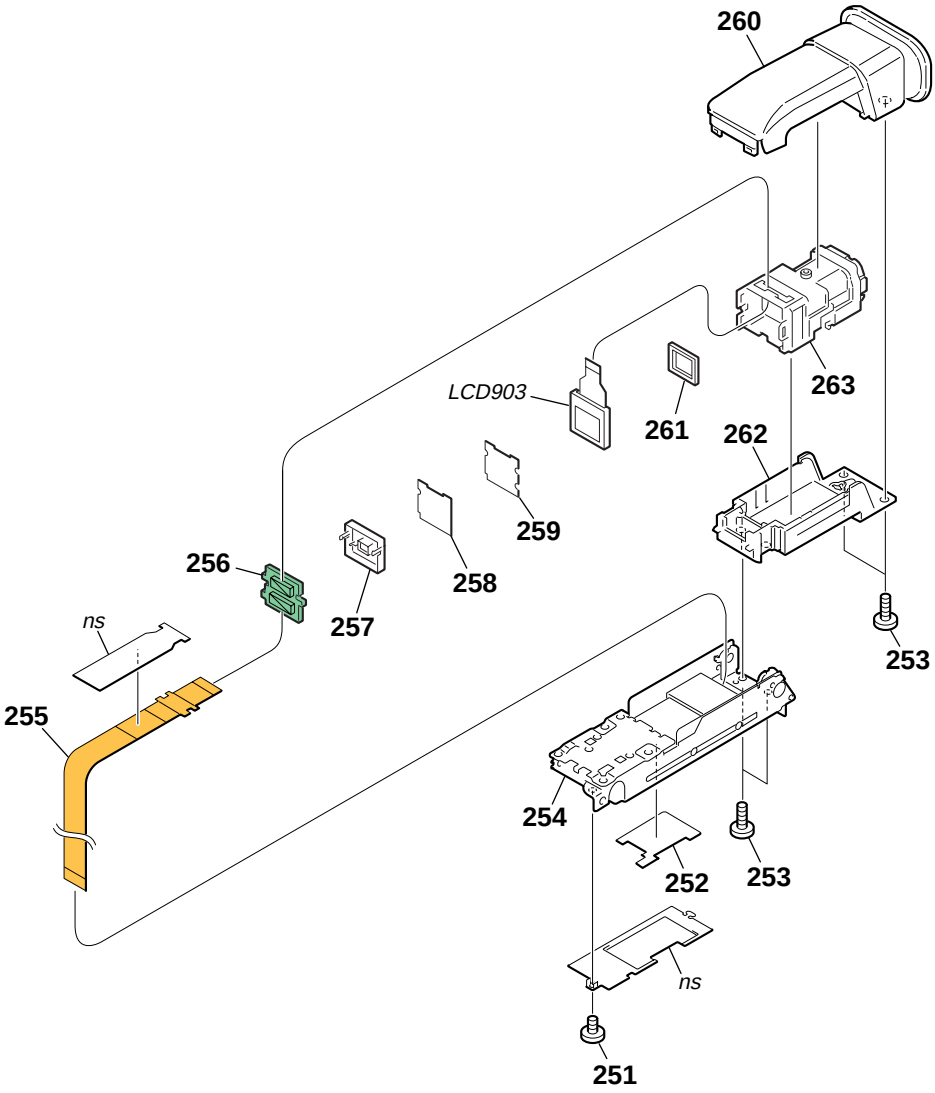
Ref. No.	Part No.	Description
201	3-056-233-21	SCREW (M2), LOCK ACE, P2
202	X-3952-406-2	P CABINET (C) ASSY 3.5
203	4-974-725-01	SCREW (M1.7X2.5), P
204	3-073-468-01	COVER (FRONT), HINGE
205	X-3952-242-2	HINGE ASSY
206	1-684-256-21	FP-442 FLEXIBLE BOARD
207	3-073-469-01	COVER (REAR), HINGE
208	1-961-796-11	HARNESS (PV-139)
209	3-073-488-51	PLATE, P ORNAMENTAL
210	X-3952-289-1	P FRAME ASSY

Ref. No.	Part No.	Description
211	3-073-850-01	P CABINET (M) 3.5
212	3-073-470-01	BUTTON, P OPEN
213	3-073-472-01	SPRING (U), LOCK
214	3-073-471-01	P LOCK
215	3-073-473-01	SPRING (L), LOCK
216	A-7012-227-A	PD-161 (35SH123) BOARD, COMPLETE
217	3-073-467-01	LCD HOLDER
218	3-075-395-01	SHEET, P ELECTROSTATIC
LCD901	1-803-855-21	INDICATOR MODULE LIQUID CRYSTAL
LCD902	A-7096-989-A	INDICATION LCD BLOCK ASSY
⚠ND901	1-517-855-31	TUBE, FLUORESCENT,COLD CATHODE

Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

6-1-6. EVF SECTION

ns : not supplied

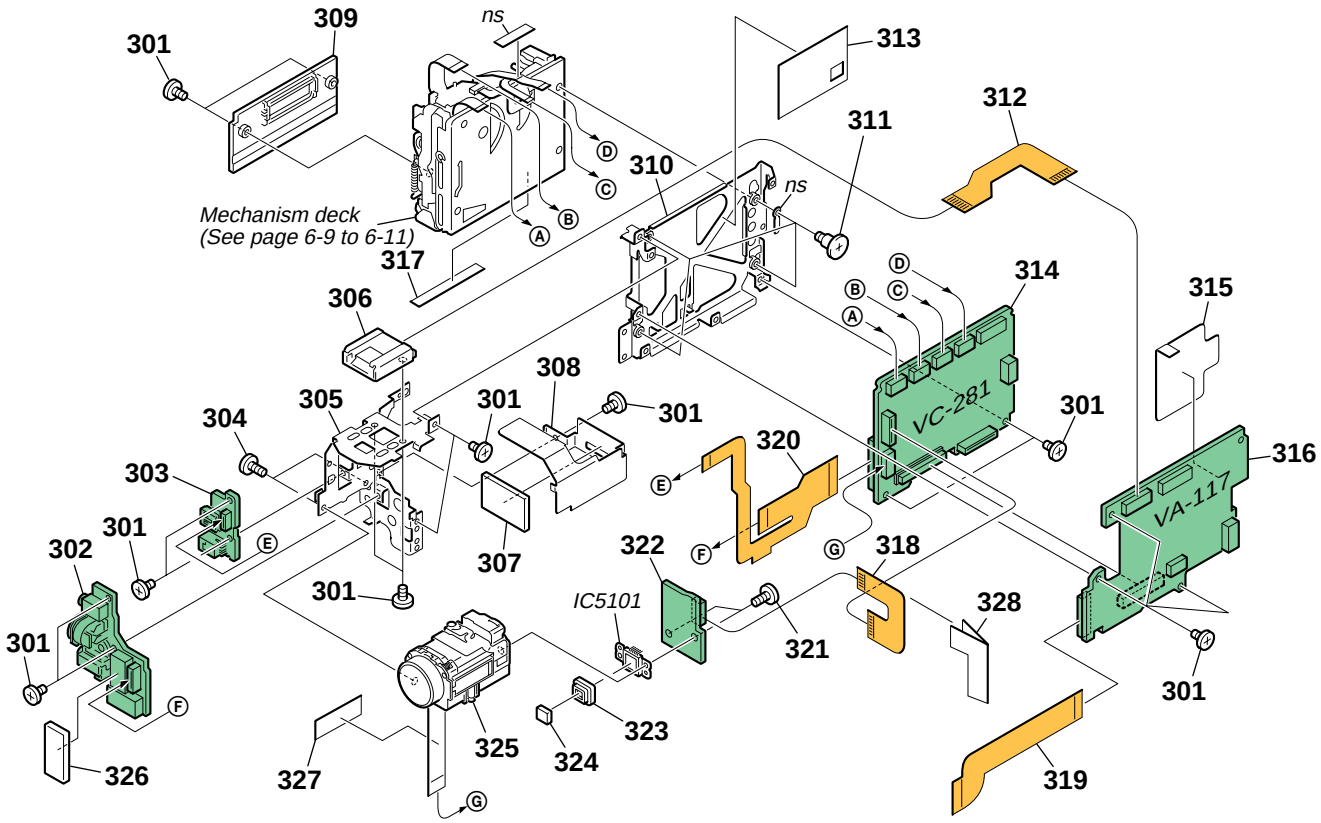


Ref. No.	Part No.	Description
251	4-974-725-01	SCREW (M1.7X2.5), P
252	3-073-454-01	SHEET, VF FLEXIBLE BOARD RETAINER
253	3-713-791-31	SCREW (M1.7X6), TAPPING, P2
254	X-3952-234-1	VF BASE ASSY
255	1-684-249-11	FP-435 FLEXIBLE BOARD
256	A-7078-102-A	LB-077 BOARD, COMPLETE
257	3-072-214-01	GUIDE (20), LAMP

Ref. No.	Part No.	Description
258	3-072-211-01	ILLUMINATOR
259	3-072-210-01	SHEET, PRISM
260	X-3952-235-1	VF CABINET (UPPER) ASSY
261	3-059-734-01	CUSHION (1), LCD
262	X-3952-236-1	VF CABINET (LOWER) ASSY
263	X-3951-453-1	LENS ASSY, VF
LCD903	8-753-028-47	LCX032AN-J

6-1-7. MAIN CHASSIS COMPLETE SECTION

ns : not supplied



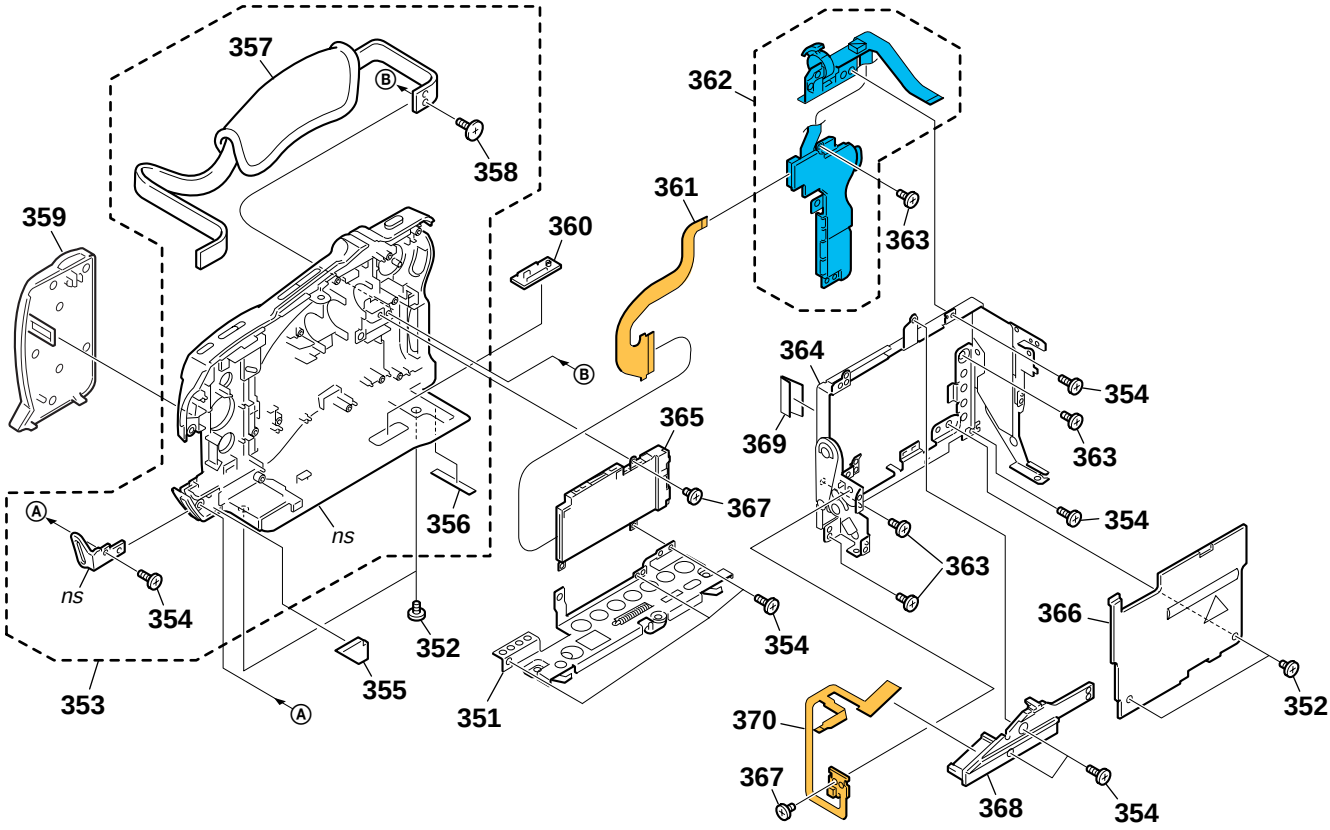
Be sure to read “Precautions upon replacing CCD imager” on page 4-9 when changing the CCD imager.

Ref. No.	Part No.	Description
301	4-974-725-01	SCREW (M1.7X2.5), P
302	A-7078-100-A	JK-217 BOARD, COMPLETE
303	A-7078-101-A	JK-218 BOARD, COMPLETE
304	3-713-791-51	SCREW (M1.7X3.5), TAPPING, P2
305	3-073-845-01	FRAME (G), LENS
306	1-815-124-11	CONNECTOR, EXTERNAL (HOT SHOE)
307	3-073-847-01	CD RADIATION SHEET
308	3-073-846-01	CD HEAT SINK
309	3-059-722-01	COVER, CASSETTE COMPARTMENT
310	X-3952-290-1	MD FRAME ASSY (G)
311	3-059-718-01	SCREW (M1.4X1.5)
312	1-684-250-11	FP-436 FLEXIBLE BOARD
313	3-074-611-01	SHEET, HEAT INSULATING
314	A-7078-287-A	VC-281 BOARD, COMPLETE(SERVICE) (TRV25E/TRV27E)
314	A-7078-331-A	VC-281 BOARD, COMPLETE(SERVICE)(TRV24E)

Ref. No.	Part No.	Description
315	3-074-613-01	VV SHIELD SHEET
316	A-7012-225-A	VA-117 (GFB) BOARD, COMPLETE
317	3-059-725-01	LABEL, LS
318	1-684-254-11	FP-440 FLEXIBLE BOARD
319	1-684-251-11	FP-437 FLEXIBLE BOARD
320	1-684-259-11	FP-445 FLEXIBLE BOARD
321	3-713-791-41	SCREW (M1.7X5), TAPPING, P2
322	A-7012-226-A	CD-366 BOARD, COMPLETE
323	3-053-973-01	RUBBER (W), SEAL
324	1-758-569-11	FILTER BLOCK, OPTICAL
325	8-848-756-01	DEVICE, LENS LSV-750A
326	3-074-612-01	CUSHION, SENSOR PROTECTION
327	3-831-441-11	TAPE (F)
328	3-074-614-01	SHEET, CD FLEXIBLE BOARD SHIELD
IC5101	A-7031-359-A	CCD BLOCK ASSY (CCD IMAGER)

6-1-8. CABINET (L) SECTION

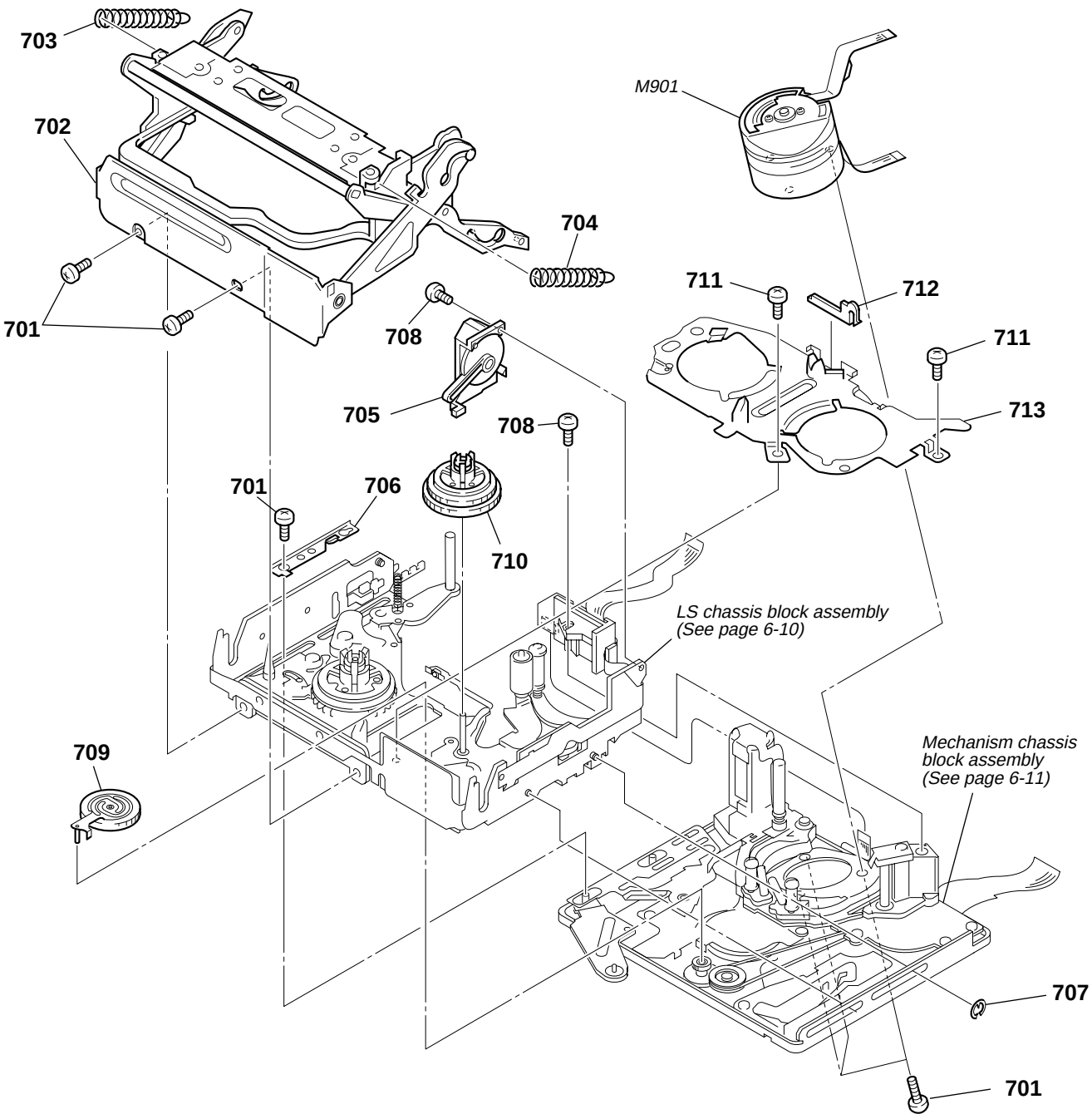
ns : not supplied



Ref. No.	Part No.	Description
351	X-3952-237-1	LOCK ASSY, GRIP
352	3-989-735-91	SCREW (M1.7), LOCK ACE, P2
353	X-3952-416-1	CABINET (L) ASSY (G)
354	3-713-791-11	SCREW (M1.7X5), TAPPING, P2
355	3-074-586-01	CUSHION (2), MUFFLE
* 356	3-055-189-01	FOOT (A)
357	3-061-550-01	BELT, GRIP
358	3-073-686-01	SCREW (M2X2.5)
359	X-3952-230-1	COVER ASSY, JACK
360	3-073-456-01	EJECT KNOB

Ref. No.	Part No.	Description
361	1-684-252-11	FP-438 FLEXIBLE BOARD
362	1-477-148-11	SWITCH BLOCK, CONTROL (PS-CX2670)
363	3-713-791-51	SCREW (M1.7X3.5), TAPPING, P2
364	X-3952-238-1	CS FRAME ASSY
365	1-816-271-11	CONNECTOR, MEMORY STICK 10P
366	3-073-457-01	COVER, GRIP
367	4-974-725-01	SCREW (M1.7X2.5), P
368	3-073-458-01	COVER, ZOOM
369	3-073-928-01	L SHEET
370	1-684-257-21	FP-443 FLEXIBLE BOARD

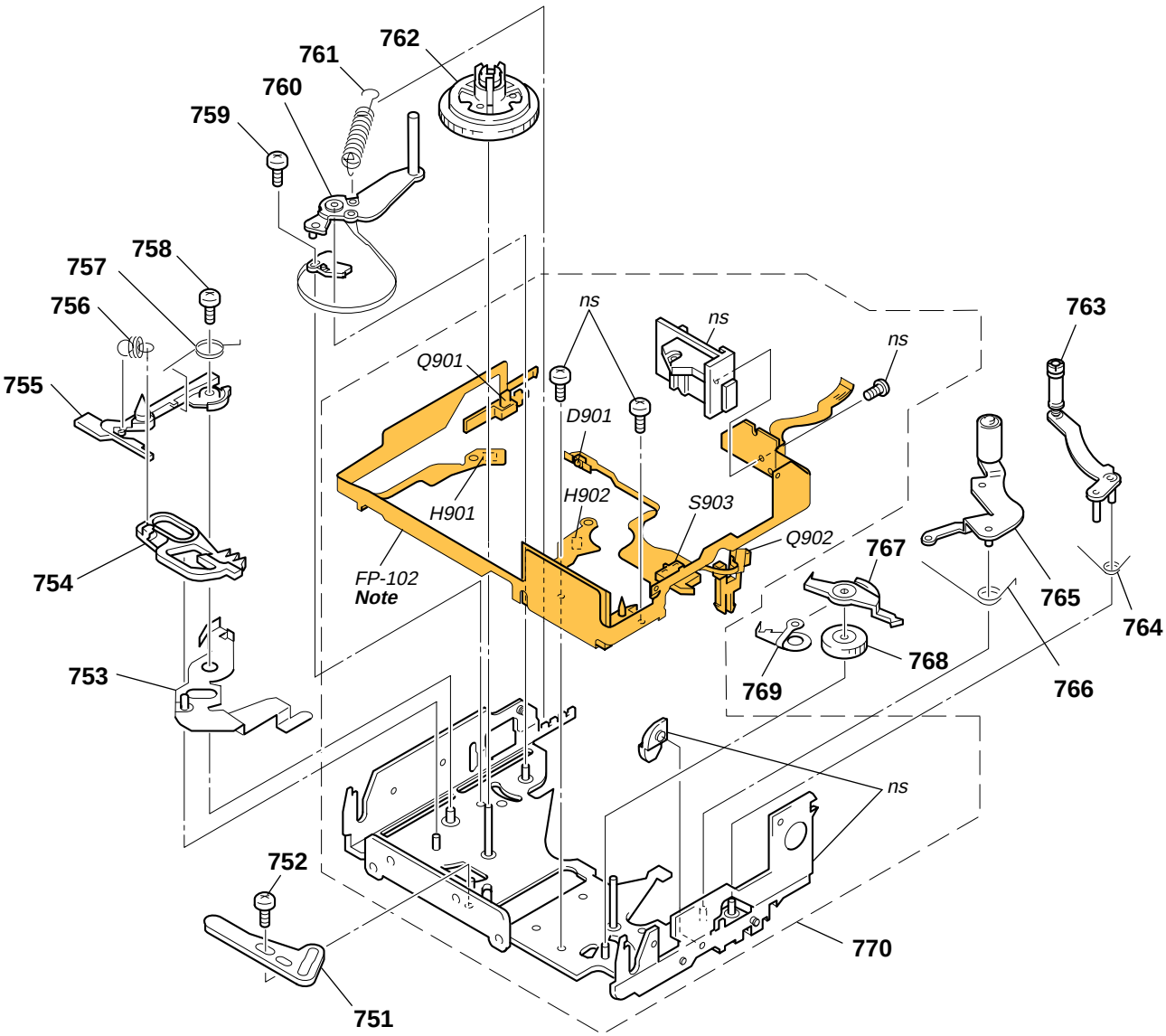
6-1-9. CASSETTE COMPARTMENT ASSEMBLY, DRUM BLOCK ASSEMBLY



Ref. No.	Part No.	Description
701	3-703-816-14	SCREW (M1.4)
702	X-3952-017-3	CASSETTE COMPARTMENT ASSY
703	3-059-082-01	SPRING, TENSION (CASSETTE COMPARTMENT S)
704	3-059-208-01	SPRING(CASSETTE COMPARTMENT T)
705	X-3950-370-3	DAMPER ASSY
706	3-059-101-03	RETAINER, LS GUIDE
707	7-624-102-04	STOP RING 1.5, TYPE -E
708	3-704-197-21	SCREW (M1.4X2.5), SPECIAL HEAD
709	X-3950-364-1	GEAR ASSY, GOOSENECK
710	X-3950-366-1	TABLE ASSY, T REEL
711	3-075-097-01	SCREW (M1.4X1.4), SPECIAL HEAD
712	3-059-093-01	RETAINER, LED
713	X-3950-361-1	PLATE ASSY, RETAINER
M901	A-7048-940-A	DRUM (DEH-18A-R)

6-1-10. LS CHASSIS BLOCK ASSEMBLY

ns : not supplied



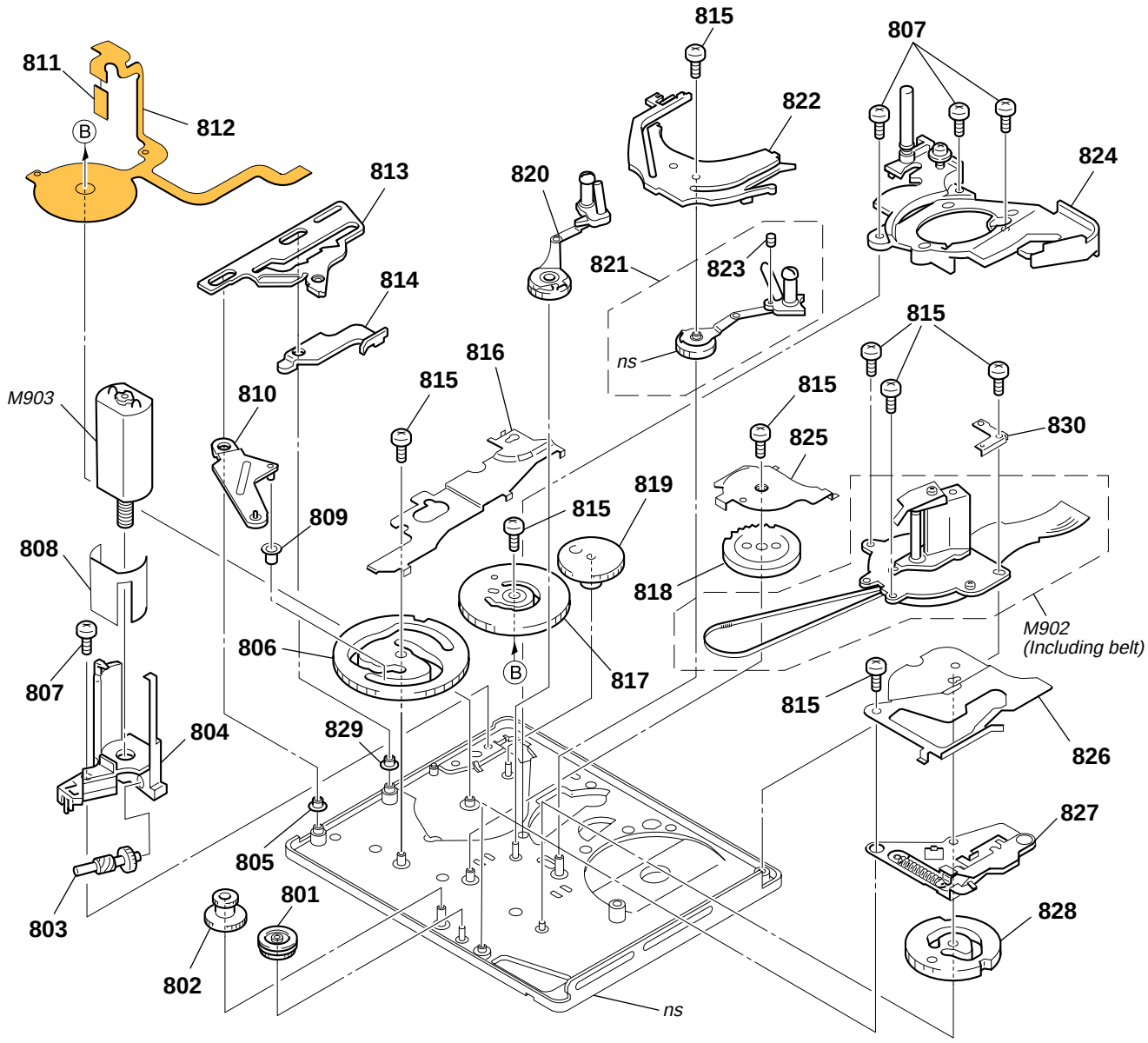
Note: *FP-102 is included in the LS sub assy and is attached to chassis by hot-press.*
Because installation of FP-102 requires a very high accuracy, FP-102 is not supplied as an independent service parts.

Ref. No.	Part No.	Description
751	3-059-173-01	PLATE, LS CAM
752	3-075-097-01	SCREW (M1.4X1.4), SPECIAL HEAD
753	X-3950-371-1	ARM ASSY, BRAKE (S) DRIVING
754	3-059-166-01	BRAKE (S)
755	3-059-146-01	POSITIONING (S), CASSETTE
756	3-059-167-01	SPRING (BRAKE S), TENSION COIL
757	3-059-169-01	SPRING (BRAKE S ARM), TORSION
758	3-703-816-14	SCREW (M1.4)
759	3-059-090-01	SCREW (M1.4X2.5), SPECIAL HEAD
* 760	X-3950-358-4	TG1 ASSY
761	3-059-156-01	SPRING (TENSION REGULATOR)
762	X-3950-365-2	TABLE ASSY, S REEL
763	A-7094-819-A	TG7 BLOCK ASSY

Ref. No.	Part No.	Description
764	3-059-165-01	SPRING (TG7 RETURN), TORSION
765	X-3950-359-1	ARM ASSY , PINCH (O)
766	3-059-161-01	SPRING (PINCH RETURN), TORSION
767	3-059-170-01	BRAKE (T)
768	3-059-171-01	GEAR (T), BRAKE
769	3-059-172-01	SPRING (T), BRAKE
770	A-7094-816-B	LS BLOCK ASSY
D901	8-719-078-71	DIODE LN57A.SO (TAPE LED)
H901	8-719-067-74	ELEMENT, HOLE HW-105A-CDE-T (S REEL)
H902	8-719-067-74	ELEMENT, HOLE HW-105A-CDE-T (T REEL)
Q901	8-729-028-71	TRANSISTOR PN166.SO (TAPE END SENSOR)
Q902	8-729-028-71	TRANSISTOR PN166.SO (TAPE TOP SENSOR)
S903	1-572-288-11	SWITCH, PUSH (C.C.DOWN)

6-1-11. MECHANISM CHASSIS BLOCK ASSEMBLY

ns : not supplied



Ref. No.	Part No.	Description
801	3-059-211-01	GEAR, CONVERSION
802	3-059-220-01	GEAR, RELAY
803	3-059-187-01	SHAFT, WORM
804	3-059-186-02	HOLDER, MOTOR
805	3-060-002-01	ROLLER, LS GUIDE
806	3-059-189-01	GEAR (A), CAM
807	3-704-197-21	SCREW (M1.4X2.5), SPECIAL HEAD
808	3-059-225-01	SHIELD, MOTOR
809	3-059-191-01	ROLLER, LS
810	3-059-190-01	ARM, LS
811	1-677-049-11	FP-228 FLEXIBLE BOARD (DEW SENOR)
812	1-677-084-11	FP-100 FLEXIBLE BOARD
813	3-059-148-01	ARM, TG1 DRIVING
814	3-059-149-01	SLIDER, TG1 CAM
815	3-703-816-14	SCREW (M1.4)
816	3-059-117-01	COVER (A), GEAR

Ref. No.	Part No.	Description
817	X-3950-367-1	GEAR ASSY, MODE
818	3-059-139-01	GEAR, GL DRIVING
819	3-059-188-01	GEAR, DECELERATION
820	A-7094-818-A	COASTER (S) BLOCK ASSY
821	A-7094-817-A	COASTER (T) BLOCK ASSY
822	3-059-126-01	RAIL, GUIDE
823	3-962-914-01	SCREW (M1.4X2)
824	A-7094-822-A	DRUM BASE BLOCK ASSY
825	3-059-118-01	COVER (B), GEAR
826	3-059-083-01	COVER (C), GEAR
827	X-3950-368-1	ARM ASSY, PINCH DRIVING
828	3-059-192-01	GEAR (B), CAM
829	3-063-355-01	ROLLER (S1), LS GUIDE
830	3-065-202-01	SUPPORT, TG7
M902	8-835-685-01	MOTOR, DC SCD18A/C-NP (INCLUDING BELT)(CAPSTAN)
M903	A-7094-823-A	MOTOR BLOCK ASSY (LOADING)

6-2. ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- CAPACITORS:
  uF: µF
- COILS
  uH: µH
- RESISTORS
  All resistors are in ohms.
  METAL: metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F: nonflammable
- SEMICONDUCTORS
  In each case, u: µ, for example:
  uA...: µA... , uPA... , µPA... ,
  uPB... , µPB... , uPC... , µPC... ,
  uPD..., µPD...

When indicating parts by reference number, please include the board name.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

- Abbreviation
  EE : East European model
  NE : North European model
  HK : Hong Kong model
  AUS : Australian model
  CH : Chinese model
  JE : Tourist model

Ref. No.	Part No.	Description			
	A-7012-226-A	CD-366 BOARD, COMPLETE			
		**********			
		(IC5101 is not included in this complete board.)			
		< CAPACITOR >			
C5101	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C5102	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C5103	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5105	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5106	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C5108	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5110	1-113-987-11	TANTAL. CHIP	4.7uF	20%	25V
C5111	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C5112	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C5113	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5114	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C5116	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
		< CONNECTOR >			
CN5101	1-784-421-11	CONNECTOR, FFC/FPC (ZIF) 27P			
CN5102	1-766-336-21	CONNECTOR, FFC/FPC 6P			
		< FERRITE BEAD >			
FB5101	1-414-445-11	FERRITE	0uH		
FB5102	1-500-284-21	FERRITE	0uH		
FB5103	1-500-284-21	FERRITE	0uH		
		< IC >			
IC5101	A-7031-359-A	CCD BLOCK ASSY (CCD IMAGER)			
IC5102	6-701-755-01	IC AD80017AJRURL			
		< COIL >			
L5101	1-469-528-91	INDUCTOR	100uH		
L5102	1-469-525-91	INDUCTOR	10uH		
		< TRANSISTOR >			
Q5101	8-729-037-74	TRANSISTOR	UN9213J-(TX).SO		
		< RESISTOR >			
R5101	1-218-990-11	SHORT CHIP	0		
R5102	1-218-990-11	SHORT CHIP	0		

Ref. No.	Part No.	Description			
	A-7078-105-A	CK-108 BOARD, COMPLETE			
		**********			
		< BATTERY >			
BT5201	1-756-128-11	BATTERY, LITHIUM (SECONDARY)			
		< CONNECTOR >			
CN5201	1-573-927-11	CONNECTOR, FFC/FPC 18P			
CN5202	1-815-231-11	CONNECTOR, FFC/FPC (ZIF) 40P			
CN5203	1-794-997-11	PIN, CONNECTOR 20P			
CN5204	1-794-377-21	PIN, CONNECTOR 8P			
CN5205	1-778-506-21	PIN, CONNECTOR (PC BOARD) 2P			
CN5207	1-691-346-11	CONNECTOR, FFC/FPC (ZIF) 8P			
		< DIODE >			
D5201	8-719-062-16	DIODE 01ZA8.2(TPL3)			
D5203	8-719-056-85	DIODE UDZSTE-178.2B			
D5204	8-719-062-16	DIODE 01ZA8.2(TPL3)			
D5205	8-719-062-16	DIODE 01ZA8.2(TPL3)			
D5206	8-719-062-16	DIODE 01ZA8.2(TPL3)			
		< RESISTOR >			
R5201	1-218-953-11	RES-CHIP	1K	5%	1/16W
R5206	1-218-954-11	RES-CHIP	1.2K	5%	1/16W
R5207	1-218-954-11	RES-CHIP	1.2K	5%	1/16W
R5208	1-218-954-11	RES-CHIP	1.2K	5%	1/16W
R5209	1-218-954-11	RES-CHIP	1.2K	5%	1/16W
R5210	1-218-955-11	RES-CHIP	1.5K	5%	1/16W
R5211	1-218-955-11	RES-CHIP	1.5K	5%	1/16W
R5212	1-218-955-11	RES-CHIP	1.5K	5%	1/16W
R5213	1-218-955-11	RES-CHIP	1.5K	5%	1/16W
R5214	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R5215	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R5216	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R5217	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R5218	1-218-960-11	RES-CHIP	3.9K	5%	1/16W
R5219	1-218-960-11	RES-CHIP	3.9K	5%	1/16W
R5220	1-218-960-11	RES-CHIP	3.9K	5%	1/16W
R5221	1-218-964-11	RES-CHIP	8.2K	5%	1/16W
R5222	1-218-960-11	RES-CHIP	3.9K	5%	1/16W
R5223	1-218-964-11	RES-CHIP	8.2K	5%	1/16W
R5224	1-218-964-11	RES-CHIP	8.2K	5%	1/16W

Be sure to read "Precautions upon replacing CCD imager" on page 4-9 when changing the CCD imager.

Ref. No.	Part No.	Description			
R5225	1-218-970-11	RES-CHIP	27K	5%	1/16W
R5226	1-218-964-11	RES-CHIP	8.2K	5%	1/16W
R5227	1-218-990-11	SHORT CHIP	0		
R5228	1-218-990-11	SHORT CHIP	0		
		< SWITCH >			
S5201	1-786-157-11	SWITCH, TACTILE (STOP)			
S5202	1-786-157-11	SWITCH, TACTILE (REW)			
S5203	1-786-157-11	SWITCH, TACTILE (RESET)			
S5204	1-786-157-11	SWITCH, TACTILE (PLAY)			
S5205	1-786-157-11	SWITCH, TACTILE (FF)			
S5206	1-786-157-11	SWITCH, TACTILE (PAUSE)			
S5207	1-786-148-11	SWITCH, PUSH (1 KEY)(PANEL OPEN/CLOSE)			
	A-7078-103-A	FB-219 BOARD, COMPLETE			
		**********			
		< CONNECTOR >			
CN6001	1-779-327-11	CONNECTOR, FFC/FPC 6P			
		< DIODE >			
D6001	8-719-074-30	DIODE SML-310LTT86			
		< PHOTO INTERRUPTER >			
PH6001	8-749-016-83	IC GP1S092HCPI			
PH6002	8-749-016-83	IC GP1S092HCPI			
		< RESISTOR >			
R6001	1-218-990-11	SHORT CHIP	0		
R6002	1-218-951-11	RES-CHIP	680	5%	1/16W
R6003	1-218-947-11	RES-CHIP	330	5%	1/16W
	A-7078-100-A	JK-217 BOARD, COMPLETE			
		**********			
		< CONNECTOR >			
CN5305	1-779-334-11	CONNECTOR, FFC/FPC 20P			
		< DIODE >			
D5301	8-719-056-85	DIODE UDZSTE-178.2B			
D5302	8-719-062-16	DIODE 01ZA8.2(TPL3)			
		< FERRITE BEAD >			
FB5301	1-500-444-11	FERRITE	0uH		
FB5302	1-469-179-21	FERRITE	0uH		
FB5303	1-469-179-21	FERRITE	0uH		
FB5304	1-469-179-21	FERRITE	0uH		
FB5305	1-469-179-21	FERRITE	0uH		
FB5307	1-500-444-11	FERRITE	0uH		
FB5308	1-500-444-11	FERRITE	0uH		
FB5309	1-500-444-11	FERRITE	0uH		
FB5310	1-500-444-11	FERRITE	0uH		
		< JACK >			
J5301	1-793-995-11	JACK, SUPER SMALL TYPE (LANC)			
J5302	1-694-651-11	TERMINAL BOARD (S VIDEO/AUDIO/VIDEO)			

Ref. No.	Part No.	Description			
		< RESISTOR >			
R5301	1-216-864-11	METAL CHIP	0	5%	1/16W
R5302	1-216-864-11	METAL CHIP	0	5%	1/16W
R5303	1-216-864-11	METAL CHIP	0	5%	1/16W
R5304	1-216-864-11	METAL CHIP	0	5%	1/16W
R5305	1-216-864-11	METAL CHIP	0	5%	1/16W
		< SENSOR >			
SE5301	1-803-042-31	SENSOR, ANGULAR VELOCITY (YAW)			
SE5302	1-803-042-41	SENSOR, ANGULAR VELOCITY (PITCH)			
		< VARISTOR >			
VD5301	1-803-974-21	VARISTOR, CHIP			
VD5302	1-801-923-11	VARISTOR, CHIP			
VD5303	1-803-974-21	VARISTOR, CHIP			
VD5304	1-803-974-21	VARISTOR, CHIP			
VD5305	1-803-974-21	VARISTOR, CHIP			
VD5306	1-803-974-21	VARISTOR, CHIP			
	A-7078-101-A	JK-218 BOARD, COMPLETE			
		**********			
		< CONNECTOR >			
CN5351	1-794-962-11	CONNECTOR, SQUARE TYPE(USB 5P)(USB)			
CN5352	1-794-276-11	CONNECTOR, SQUARE TYPE 4P (DV IN/OUT)			
CN5353	1-779-330-21	CONNECTOR, FFC/FPC 12P			
		< DIODE >			
D5351	8-719-062-16	DIODE 01ZA8.2(TPL3)			
D5352	8-719-056-85	DIODE UDZSTE-178.2B			
D5353	8-719-056-85	DIODE UDZSTE-178.2B			
D5354	8-719-078-02	DIODE 1SS357(T3SONY1)			
		< LINE FILTER >			
LF5351	1-419-100-21	INDUCTOR	0uH		
LF5352	1-419-100-21	INDUCTOR	0uH		
		< RESISTOR >			
R5351	1-218-965-11	RES-CHIP	10K	5%	1/16W
R5352	1-218-965-11	RES-CHIP	10K	5%	1/16W
		< SWITCH >			
S5351	1-786-227-21	SWITCH, TACTILE (SUPER NS)			
	A-7078-102-A	LB-077 BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C6101	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C6102	1-164-505-11	CERAMIC CHIP	2.2uF		16V
		< CONNECTOR >			
CN6101	1-691-358-21	CONNECTOR, FFC/FPC (ZIF) 20P			
CN6102	1-691-354-21	CONNECTOR, FFC/FPC (ZIF) 16P			

Ref. No.	Part No.	Description			
		< DIODE >			
D6102	8-719-082-33	DIODE NSCW100-T39			
		< IC >			
IC6101	8-759-581-11	IC NJM2125F(TE2)			
		< TRANSISTOR >			
Q6101	8-729-054-48	TRANSISTOR	RN4983FE(TPLR3)		
Q6102	8-729-054-48	TRANSISTOR	N1B04FE-Y/GR(TPLR3)		
		< RESISTOR >			
R6102	1-208-941-11	METAL CHIP	180K	0.5%	1/16W
R6103	1-208-719-11	METAL CHIP	33K	0.5%	1/16W
R6104	1-218-959-11	RES-CHIP	3.3K	5%	1/16W
R6105	1-216-839-11	METAL CHIP	33K	5%	1/16W
R6106	1-211-977-11	METAL CHIP	22	0.5%	1/10W
		< THERMISTOR >			
TH6101	1-810-811-11	THERMISTOR, NTC (1608)			
	A-7078-104-A	MA-409 BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C5901	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C5902	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
		< CONNECTOR >			
CN5901	1-816-232-11	PIN, CONNECTOR (PC BOARD) 4P			
CN5902	1-779-336-11	CONNECTOR, FFC/FPC 24P			
CN5903	1-779-328-21	CONNECTOR, FFC/FPC 8P			
		< DIODE >			
D5901	8-719-067-44	DIODE CL-310IRS-X-TU			
D5902	8-719-067-44	DIODE CL-310IRS-X-TU			
D5903	8-719-016-74	DIODE 1SS352-TPH3			
D5905	8-719-056-85	DIODE UDZSTE-178.2B			
		< FERRITE BEAD >			
FB5901	1-500-444-11	FERRITE	0uH		
FB5902	1-500-444-11	FERRITE	0uH		
FB5903	1-500-444-11	FERRITE	0uH		
FB5904	1-500-444-11	FERRITE	0uH		
		< IC >			
IC5901	8-742-221-00	HYB IC SBX3055-01			
		< JACK >			
J5901	1-691-737-41	JACK (SMALL TYPE) (MIC(PLUG IN POWER))			
J5902	1-569-950-41	JACK (SMALL TYPE) (HEADPHONES)			
		< RESISTOR >			
R5901	1-216-805-11	METAL CHIP	47	5%	1/16W

Ref. No.	Part No.	Description			
		< VARISTOR >			
VD5901	1-801-862-11	VARISTOR, CHIP			
VD5902	1-801-862-11	VARISTOR, CHIP			
VD5903	1-801-862-11	VARISTOR, CHIP			
VD5904	1-801-862-11	VARISTOR, CHIP			
	A-7078-106-A	PD-161 (25SH123) BOARD, COMPLETE (TRV24E/TRV25E)			
		**********			
	A-7012-227-A	PD-161 (35SH123) BOARD, COMPLETE (TRV27E)			
		**********			
		< CAPACITOR >			
C5501	1-117-920-11	TANTAL. CHIP	10uF	20%	6.3V
C5504	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C5505	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C5506	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C5507	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C5508	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5509	1-135-177-21	TANTALUM CHIP	1uF	20%	20V
C5510	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C5511	1-164-739-11	CERAMIC CHIP	560PF	5%	50V
C5512	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5513	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C5514	1-117-920-11	TANTAL. CHIP	10uF	20%	6.3V
C5515	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C5516	1-164-870-11	CERAMIC CHIP	68PF	5%	50V (TRV24E/TRV25E)
C5516	1-164-874-11	CERAMIC CHIP	100PF	5%	50V (TRV27E)
C5517	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C5518	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C5519	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C5520	1-131-615-11	TANTAL. CHIP	6.8uF	20%	16V
C5521	1-127-573-11	CERAMIC CHIP	1uF	10%	16V
C5524	1-127-573-11	CERAMIC CHIP	1uF	10%	16V
C5527	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C5528	1-135-177-21	TANTALUM CHIP	1uF	20%	20V
C5530	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C5531	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C5603	1-164-657-11	CERAMIC CHIP	0.015uF	10%	50V
C5604	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5605	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
⚠C5606	1-131-959-91	CERAMIC CHIP	12PF	10%	3KV
C5607	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
		< CONNECTOR >			
CN5501	1-573-364-11	CONNECTOR, FFC/FPC 24P			
CN5601	1-764-709-11	CONNECTOR, FFC/FPC (LIF) 10P			
CN5651	1-794-377-21	PIN, CONNECTOR 8P			
CN5652	1-794-997-11	PIN, CONNECTOR 20P			
CN5653	1-691-370-11	CONNECTOR, FFC/FPC 6P			
CN5654	1-691-384-11	CONNECTOR, FFC/FPC 20P			

Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description			
		< DIODE >			
D5502	8-719-084-47	DIODE 1SV290(TPL3)			
D5503	8-719-073-01	DIODE MA111-(K8).S0			
D5601	8-719-073-01	DIODE MA111-(K8).S0			
D5602	8-719-062-44	DIODE PG1112H-TR (TRV24E/TRV25E)			
		< FERRITE BEAD >			
FB5501	1-414-760-21	FERRITE 0uH			
FB5502	1-414-760-21	FERRITE 0uH			
FB5503	1-414-760-21	FERRITE 0uH			
		< IC >			
IC5501	8-752-102-40	IC CXA3592R-T4			
IC5502	8-759-714-77	IC LZ9FF474			
IC5601	8-759-564-49	IC TC7W53FU(TE12R)			
IC5602	8-759-075-70	IC TA75S393F-TE85R			
IC5651	8-759-573-02	IC BU9735K-E2			
		< COIL >			
L5501	1-469-555-21	INDUCTOR 10uH			
L5503	1-469-891-21	INDUCTOR 6.8uH			
L5601	1-428-878-11	INDUCTOR 0uH			
		< TRANSISTOR >			
Q5502	8-729-041-23	TRANSISTOR MGSF1P02LT1			
Q5503	8-759-054-48	TRANSISTOR UP04601008S0			
Q5504	8-759-054-48	TRANSISTOR UP04601008S0			
Q5505	8-729-037-74	TRANSISTOR UN9213J-(K8).SO			
Q5601	8-729-037-74	TRANSISTOR UN9213J-(K8).SO			
Q5603	8-729-054-45	TRANSISTOR UP04312008S0			
Q5605	6-550-065-01	TRANSISTOR CPH5504-TL-E			
		< RESISTOR >			
R5501	1-218-985-11	RES-CHIP	470K	5%	1/16W
R5503	1-208-931-11	METAL CHIP	68K	0.5%	1/16W
R5505	1-218-967-11	RES-CHIP	15K	5%	1/16W
R5506	1-218-958-11	RES-CHIP	2.7K	5%	1/16W
R5507	1-218-973-11	RES-CHIP	47K	5%	1/16W
R5508	1-218-975-11	RES-CHIP	68K	5%	1/16W
R5509	1-218-969-11	RES-CHIP	22K	5%	1/16W
R5510	1-218-975-11	RES-CHIP	68K	5%	1/16W
R5511	1-218-989-11	RES-CHIP	1M	5%	1/16W
R5512	1-218-977-11	RES-CHIP	100K	5%	1/16W
R5513	1-218-989-11	RES-CHIP	1M	5%	1/16W
R5515	1-218-990-11	SHORT CHIP	0		
R5516	1-218-965-11	RES-CHIP	10K	5%	1/16W
R5519	1-218-990-11	SHORT CHIP	0		
R5521	1-218-973-11	RES-CHIP	47K	5%	1/16W
R5523	1-218-990-11	SHORT CHIP	0		
R5531	1-218-980-11	RES-CHIP	180K	5%	1/16W
R5532	1-218-977-11	RES-CHIP	100K	5%	1/16W
R5533	1-218-989-11	RES-CHIP	1M	5%	1/16W
R5534	1-218-953-11	RES-CHIP	1K	5%	1/16W
R5540	1-218-977-11	RES-CHIP	100K	5%	1/16W
R5541	1-218-977-11	RES-CHIP	100K	5%	1/16W
R5552	1-218-957-11	RES-CHIP	2.2K	5%	1/16W (TRV24E/TRV25E)
R5552	1-218-962-11	RES-CHIP	5.6K	5%	1/16W (TRV27E)
R5591	1-218-953-11	RES-CHIP	1K	5%	1/16W
R5601	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R5602	1-218-980-11	RES-CHIP	180K	5%	1/16W
R5603	1-218-969-11	RES-CHIP	22K	5%	1/16W
R5605	1-218-942-11	RES-CHIP	120	5%	1/16W
R5606	1-218-969-11	RES-CHIP	22K	5%	1/16W
R5607	1-218-949-11	RES-CHIP	470	5%	1/16W
R5612	1-218-965-11	RES-CHIP	10K	5%	1/16W
R5613	1-218-965-11	RES-CHIP	10K	5%	1/16W (TRV24E/TRV25E)
R5613	1-218-968-11	RES-CHIP	18K	5%	1/16W (TRV27E)
R5651	1-218-946-11	RES-CHIP	270	5%	1/16W
R5652	1-218-987-11	RES-CHIP	680K	5%	1/16W
		< COMPOSITION CIRCUIT BLOCK >			
RB5501	1-234-372-21	RES, NETWORK 100X4	(1005)		
RB5502	1-234-384-11	RES, NETWORK 1MX4	(1005)		
RB5503	1-234-378-21	RES, NETWORK 10KX4	(1005)		
		< TRANSFORMER >			
⚠T5601	1-435-786-31	TRANSFORMER, INVERTER (TRV24E/TRV25E)			
⚠T5601	1-437-472-11	TRANSFORMER, INVERTER (TRV27E)			
		< VARISTOR >			
VD5651	1-801-862-11	VARISTOR, CHIP			
	A-7012-225-A	VA-117 (GFB) BOARD, COMPLETE **********			
		< CAPACITOR >			
C4001	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4002	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4003	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4101	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C4103	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C4104	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C4105	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C4106	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C4107	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C4108	1-125-838-11	CERAMIC CHIP	2.2uF	10%	6.3V
C4109	1-125-838-11	CERAMIC CHIP	2.2uF	10%	6.3V
C4110	1-125-838-11	CERAMIC CHIP	2.2uF	10%	6.3V
C4111	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C4112	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C4113	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C4114	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C4115	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C4116	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4117	1-125-838-11	CERAMIC CHIP	2.2uF	10%	6.3V
C4118	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C4119	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C4120	1-125-899-11	TANTAL. CHIP	220uF	20%	4V
C4121	1-125-838-11	CERAMIC CHIP	2.2uF	10%	6.3V
C4122	1-125-899-11	TANTAL. CHIP	220uF	20%	4V
C4123	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V

Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

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Ref. No.	Part No.	Description			
C4125	1-164-858-11	CERAMIC CHIP	22PF	5%	50V
C4201	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C4204	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C4205	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C4206	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C4208	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C4209	1-164-739-11	CERAMIC CHIP	560PF	5%	50V
C4210	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4211	1-131-861-91	TANTAL. CHIP	4.7uF	20%	20V
C4212	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C4213	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C4214	1-164-876-11	CERAMIC CHIP	120PF	5%	50V
C4215	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C4216	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C4217	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C4218	1-109-994-11	CERAMIC CHIP	2.2uF	10%	10V
C4219	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C4302	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C4303	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C4304	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C4305	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C4306	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C4307	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C4308	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C4309	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4310	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4311	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C4312	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C4314	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C4315	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C4316	1-135-158-21	TANTALUM CHIP	15uF	20%	4V
C4317	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C4318	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C4319	1-135-151-21	TANTALUM CHIP	4.7uF	20%	4V
C4320	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C4321	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C4322	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C4323	1-131-862-91	TANTAL. CHIP	47uF	20%	4V
C4324	1-131-862-91	TANTAL. CHIP	47uF	20%	4V
C4325	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C4326	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C4327	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C4328	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C4401	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C4402	1-164-942-11	CERAMIC CHIP	0.0068uF	10%	16V
C4403	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C4404	1-164-942-11	CERAMIC CHIP	0.0068uF	10%	16V
C4405	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C4406	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C4410	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C4411	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C4412	1-164-874-11	CERAMIC CHIP	100PF	5%	50V
C4413	1-164-874-11	CERAMIC CHIP	100PF	5%	50V
C4414	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C4416	1-164-874-11	CERAMIC CHIP	100PF	5%	50V
C4417	1-164-874-11	CERAMIC CHIP	100PF	5%	50V
C4419	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4420	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4421	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4423	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V

Ref. No.	Part No.	Description			
C4425	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C4426	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C4427	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C4428	1-164-942-11	CERAMIC CHIP	0.0068uF	10%	16V
C4429	1-164-942-11	CERAMIC CHIP	0.0068uF	10%	16V
C4430	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C4432	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C4433	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C4434	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C4435	1-119-923-81	CERAMIC CHIP	0.047uF	10%	10V
C4437	1-119-923-81	CERAMIC CHIP	0.047uF	10%	10V
C4501	1-164-941-11	CERAMIC CHIP	0.0047uF	10%	16V
C4502	1-164-882-11	CERAMIC CHIP	220PF	5%	16V
C4503	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4504	1-119-923-81	CERAMIC CHIP	0.047uF	10%	10V
C4505	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4506	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4507	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C4508	1-164-941-11	CERAMIC CHIP	0.0047uF	10%	16V
C4509	1-164-936-11	CERAMIC CHIP	680PF	10%	50V
C4510	1-164-941-11	CERAMIC CHIP	0.0047uF	10%	16V
C4511	1-164-938-11	CERAMIC CHIP	0.0015uF	10%	50V
C4512	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	50V
C4513	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C4515	1-164-935-11	CERAMIC CHIP	470PF	10%	50V
C4516	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C4517	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C4518	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C4519	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C4520	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C4521	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C4522	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C4523	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C4525	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C4526	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C4527	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C4528	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C4529	1-164-947-11	CERAMIC CHIP	0.01uF		50V
C4530	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C4531	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C4532	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C4533	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C4534	1-164-506-11	CERAMIC CHIP	4.7uF		16V
C4535	1-164-506-11	CERAMIC CHIP	4.7uF		16V
C4536	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C4538	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C4539	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C4541	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C4543	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4544	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C4546	1-113-987-11	TANTAL. CHIP	4.7uF	20%	25V
C4547	1-119-750-11	TANTAL. CHIP	22uF	20%	6.3V
C4548	1-119-750-11	TANTAL. CHIP	22uF	20%	6.3V
C4549	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C4550	1-119-750-11	TANTAL. CHIP	22uF	20%	6.3V
C4551	1-104-913-11	TANTAL. CHIP	10uF	20%	16V
C4553	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C4554	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C4555	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C4556	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V

Ref. No.	Part No.	Description			
C4557	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C4559	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C4601	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4602	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4603	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C4604	1-119-751-11	TANTAL. CHIP	22uF	20%	16V
C4605	1-119-751-11	TANTAL. CHIP	22uF	20%	16V
C4606	1-119-751-11	TANTAL. CHIP	22uF	20%	16V
C4607	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C4608	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
		< CONNECTOR >			
CN4001	1-691-384-11	CONNECTOR, FFC/FPC 20P			
CN4002	1-774-603-21	CONNECTOR, BOARD TO BOARD 100P			
CN4003	1-691-388-11	CONNECTOR, FFC/FPC 24P			
CN4004	1-691-376-21	CONNECTOR, FFC/FPC 12P			
CN4201	1-766-350-21	CONNECTOR, FFC/FPC 20P			
* CN4601	1-580-789-21	PIN, CONNECTOR (SMD) 6P			
		< DIODE >			
D4001	8-719-062-16	DIODE 01ZA8.2(TPL3)			
D4003	8-719-062-16	DIODE 01ZA8.2(TPL3)			
D4004	8-719-062-16	DIODE 01ZA8.2(TPL3)			
D4005	8-719-062-16	DIODE 01ZA8.2(TPL3)			
D4006	8-719-056-85	DIODE UDZSTE-178.2B			
D4201	8-719-084-47	DIODE 1SV290(TPL3)			
D4502	8-719-081-19	DIODE 1SS383(T5RSONY1)			
D4503	8-719-081-19	DIODE 1SS383(T5RSONY1)			
D4601	8-719-062-16	DIODE 01ZA8.2(TPL3)			
D4602	8-719-081-19	DIODE 1SS383(T5RSONY1)			
		< FUSE >			
⚠F4601	1-576-406-21	FUSE, MICRO (1.4A/32V) (1608)			
⚠F4602	1-576-406-21	FUSE, MICRO (1.4A/32V) (1608)			
⚠F4603	1-576-406-21	FUSE, MICRO (1.4A/32V) (1608)			
⚠F4604	1-576-406-21	FUSE, MICRO (1.4A/32V) (1608)			
⚠F4605	1-576-406-21	FUSE, MICRO (1.4A/32V) (1608)			
⚠F4606	1-576-406-21	FUSE, MICRO (1.4A/32V) (1608)			
		< FERRITE BEAD >			
FB4101	1-469-676-22	FERRITE	0uH		
FB4201	1-469-676-22	FERRITE	0uH		
FB4202	1-500-329-21	FERRITE	0uH		
FB4301	1-469-676-22	FERRITE	0uH		
		< IC >			
IC4101	6-701-555-01	IC AN2225NFHQBA			
IC4201	8-752-100-95	IC CXA3289AR-T4			
IC4202	8-752-405-57	IC CXD3501AR-T4			
IC4301	6-701-074-01	IC LA74207W-TBM-E			
IC4401	8-759-679-11	IC BH7870AKV-E2			
IC4501	8-752-102-78	IC CXA3282R-T6			
IC4505	6-700-139-01	IC R1121N191B-TL			
		< COIL >			
L4101	1-469-525-91	INDUCTOR	10uH		
L4102	1-469-525-91	INDUCTOR	10uH		
L4201	1-469-525-91	INDUCTOR	10uH		
L4202	1-469-891-21	INDUCTOR	6.8uH		
L4301	1-469-525-91	INDUCTOR	10uH		

Ref. No.	Part No.	Description	
L4401	1-469-528-91	INDUCTOR	100uH
L4501	1-416-670-11	INDUCTOR	33uH
L4502	1-416-669-11	INDUCTOR	22uH
L4503	1-416-669-11	INDUCTOR	22uH
L4504	1-416-669-11	INDUCTOR	22uH
L4505	1-416-670-11	INDUCTOR	33uH
L4506	1-416-669-11	INDUCTOR	22uH
L4507	1-469-524-91	INDUCTOR	4.7uH
L4508	1-469-524-91	INDUCTOR	4.7uH
L4509	1-469-524-91	INDUCTOR	4.7uH
L4510	1-469-524-91	INDUCTOR	4.7uH
L4511	1-412-056-11	INDUCTOR	4.7uH
L4513	1-414-392-41	INDUCTOR	1uH
L4514	1-412-056-11	INDUCTOR	4.7uH
L4515	1-469-524-91	INDUCTOR	4.7uH
L4516	1-469-526-91	INDUCTOR	22uH
L4517	1-469-524-91	INDUCTOR	4.7uH
L4519	1-469-524-91	INDUCTOR	4.7uH
L4520	1-414-392-41	INDUCTOR	1uH
L4522	1-414-392-41	INDUCTOR	1uH
L4601	1-412-056-11	INDUCTOR	4.7uH
		< LINE FILTER >	
LF4601	1-411-957-11	FILTER, COMMON MODE	
		< TRANSISTOR >	
Q4001	8-729-037-76	TRANSISTOR	RN1111F(TPL3)
Q4003	8-729-049-92	TRANSISTOR	2SC5585H-T2L
Q4101	8-729-037-52	TRANSISTOR	2SC4738F-Y/GR(TPL3)
Q4102	8-729-037-61	TRANSISTOR	RN2104F(TPL3)
Q4103	8-759-054-50	TRANSISTOR	UP04501008S0
Q4301	8-729-921-51	TRANSISTOR	2SD1834-T100
Q4303	8-729-054-51	TRANSISTOR	RN2910FE(TPLR3)
Q4304	8-729-042-29	TRANSISTOR	RN1104F(TPL3)
Q4305	8-729-054-52	TRANSISTOR	RN1910FE(TPLR3)
Q4306	8-729-037-63	TRANSISTOR	UN9115J-(K8).SO
Q4307	8-729-054-52	TRANSISTOR	RN1910FE(TPLR3)
Q4501	8-729-043-60	TRANSISTOR	CPH6102-TL-E
Q4502	8-729-101-07	TRANSISTOR	2SB798-T1-DLDK
Q4503	8-729-046-98	TRANSISTOR	CPH6702-TL-E
Q4504	8-729-037-53	TRANSISTOR	2SA1832F-Y/GR(TPL3)
Q4505	8-729-046-98	TRANSISTOR	CPH6702-TL-E
Q4506	8-729-044-33	TRANSISTOR	CPH6701-TL-E
Q4507	8-759-054-50	TRANSISTOR	UP04501008S0
Q4508	8-729-046-98	TRANSISTOR	CPH6702-TL-E
Q4509	8-729-044-33	TRANSISTOR	CPH6701-TL-E
Q4510	8-729-046-98	TRANSISTOR	CPH6702-TL-E
Q4511	8-729-044-58	TRANSISTOR	SI2304DS-T1
Q4512	8-729-044-58	TRANSISTOR	SI2304DS-T1
Q4513	8-729-042-29	TRANSISTOR	RN1104F(TPL3)
Q4514	8-729-037-52	TRANSISTOR	2SC4738F-Y/GR(TPL3)
Q4515	8-729-037-53	TRANSISTOR	2SA1832F-Y/GR(TPL3)
Q4516	8-759-054-50	TRANSISTOR	UP04501008S0
Q4517	8-729-037-52	TRANSISTOR	2SC4738F-Y/GR(TPL3)
Q4518	8-729-054-49	TRANSISTOR	UP04401008S0
Q4519	8-729-037-52	TRANSISTOR	2SC4738F-Y/GR(TPL3)

Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description			
Q4520	8-729-053-54	TRANSISTOR	N1A01FE-Y/GR(TPLR3)		
Q4521	8-729-037-52	TRANSISTOR	2SC4738F-Y/GR(TPL3)		
Q4601	8-729-047-68	TRANSISTOR	SSM3K03FE(TPL3)		
Q4602	8-729-056-54	TRANSISTOR	TPCS8302(TE12L)		
Q4603	8-729-804-41	TRANSISTOR	2SB1122-ST-TD		
Q4604	8-729-042-29	TRANSISTOR	RN1104F(TPL3)		
Q4605	8-729-037-74	TRANSISTOR	UN9213J-(K8).SO		
Q4606	8-729-037-61	TRANSISTOR	RN2104F(TPL3)		
Q4607	8-729-037-61	TRANSISTOR	RN2104F(TPL3)		
Q4608	8-729-023-89	TRANSISTOR	2SJ305(TE85L)		
Q4609	8-729-023-89	TRANSISTOR	2SJ305(TE85L)		
Q4610	8-729-056-54	TRANSISTOR	TPCS8302(TE12L)		
		< RESISTOR >			
R4001	1-218-990-11	SHORT CHIP	0		
R4002	1-218-990-11	SHORT CHIP	0		
R4003	1-218-990-11	SHORT CHIP	0		
R4004	1-218-990-11	SHORT CHIP	0		
R4005	1-218-990-11	SHORT CHIP	0		
R4009	1-218-939-11	RES-CHIP	68	5%	1/16W
R4010	1-218-959-11	RES-CHIP	3.3K	5%	1/16W
R4011	1-216-017-91	RES-CHIP	47	5%	1/10W
R4012	1-216-017-91	RES-CHIP	47	5%	1/10W
R4013	1-218-990-11	SHORT CHIP	0		
R4101	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R4102	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R4103	1-218-941-81	RES-CHIP	100	5%	1/16W
R4104	1-218-981-11	RES-CHIP	220K	5%	1/16W
R4105	1-218-953-11	RES-CHIP	1K	5%	1/16W
R4106	1-218-953-11	RES-CHIP	1K	5%	1/16W
R4107	1-208-715-11	METAL CHIP	22K	0.5%	1/16W
R4108	1-218-953-11	RES-CHIP	1K	5%	1/16W
R4109	1-218-953-11	RES-CHIP	1K	5%	1/16W
R4110	1-218-965-11	RES-CHIP	10K	5%	1/16W
R4111	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R4112	1-218-935-11	RES-CHIP	33	5%	1/16W
R4113	1-218-935-11	RES-CHIP	33	5%	1/16W
R4114	1-218-935-11	RES-CHIP	33	5%	1/16W
R4115	1-218-935-11	RES-CHIP	33	5%	1/16W
R4116	1-218-935-11	RES-CHIP	33	5%	1/16W
R4117	1-218-935-11	RES-CHIP	33	5%	1/16W
R4118	1-218-953-11	RES-CHIP	1K	5%	1/16W
R4119	1-218-953-11	RES-CHIP	1K	5%	1/16W
R4120	1-218-953-11	RES-CHIP	1K	5%	1/16W
R4121	1-218-953-11	RES-CHIP	1K	5%	1/16W
R4201	1-218-985-11	RES-CHIP	470K	5%	1/16W
R4202	1-208-935-11	METAL CHIP	100K	0.5%	1/16W
R4203	1-218-990-11	SHORT CHIP	0		
R4205	1-218-958-11	RES-CHIP	2.7K	5%	1/16W
R4206	1-218-973-11	RES-CHIP	47K	5%	1/16W
R4207	1-218-975-11	RES-CHIP	68K	5%	1/16W
R4208	1-218-969-11	RES-CHIP	22K	5%	1/16W
R4209	1-218-975-11	RES-CHIP	68K	5%	1/16W
R4210	1-218-989-11	RES-CHIP	1M	5%	1/16W
R4211	1-218-977-11	RES-CHIP	100K	5%	1/16W
R4212	1-218-941-81	RES-CHIP	100	5%	1/16W
R4213	1-218-941-81	RES-CHIP	100	5%	1/16W
R4214	1-218-941-81	RES-CHIP	100	5%	1/16W
R4216	1-208-927-11	METAL CHIP	47K	0.5%	1/16W

Ref. No.	Part No.	Description			
R4217	1-218-989-11	METAL CHIP	1M	0.5%	1/16W
R4221	1-218-990-11	SHORT CHIP	0		
R4222	1-218-990-11	SHORT CHIP	0		
R4223	1-218-990-11	SHORT CHIP	0		
R4224	1-218-953-11	RES-CHIP	1K	5%	1/16W
R4301	1-218-971-11	RES-CHIP	33K	5%	1/16W
R4302	1-218-981-11	RES-CHIP	220K	5%	1/16W
R4303	1-218-960-11	RES-CHIP	3.9K	5%	1/16W
R4304	1-218-965-11	RES-CHIP	10K	5%	1/16W
R4305	1-218-965-11	RES-CHIP	10K	5%	1/16W
R4306	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R4307	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R4308	1-218-973-11	RES-CHIP	47K	5%	1/16W
R4309	1-218-973-11	RES-CHIP	47K	5%	1/16W
R4310	1-218-953-11	RES-CHIP	1K	5%	1/16W
R4311	1-218-953-11	RES-CHIP	1K	5%	1/16W
R4316	1-218-937-11	RES-CHIP	47	5%	1/16W
R4317	1-218-937-11	RES-CHIP	47	5%	1/16W
R4318	1-218-937-11	RES-CHIP	47	5%	1/16W
R4319	1-218-937-11	RES-CHIP	47	5%	1/16W
R4401	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R4402	1-218-958-11	RES-CHIP	2.7K	5%	1/16W
R4403	1-218-965-11	RES-CHIP	10K	5%	1/16W
R4404	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R4405	1-218-990-11	SHORT CHIP	0		
R4406	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R4407	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R4408	1-218-963-11	RES-CHIP	6.8K	5%	1/16W
R4409	1-218-963-11	RES-CHIP	6.8K	5%	1/16W
R4410	1-218-953-11	RES-CHIP	1K	5%	1/16W
R4411	1-218-953-11	RES-CHIP	1K	5%	1/16W
R4415	1-218-969-11	RES-CHIP	22K	5%	1/16W
R4417	1-218-969-11	RES-CHIP	22K	5%	1/16W
R4418	1-218-973-11	RES-CHIP	47K	5%	1/16W
R4419	1-218-973-11	RES-CHIP	47K	5%	1/16W
R4420	1-218-966-11	RES-CHIP	12K	5%	1/16W
R4421	1-218-966-11	RES-CHIP	12K	5%	1/16W
R4422	1-218-990-11	SHORT CHIP	0		
R4423	1-218-965-11	RES-CHIP	10K	5%	1/16W
R4424	1-218-966-11	RES-CHIP	12K	5%	1/16W
R4425	1-218-977-11	RES-CHIP	100K	5%	1/16W
R4427	1-218-959-11	RES-CHIP	3.3K	5%	1/16W
R4430	1-218-990-11	SHORT CHIP	0		
R4501	1-208-715-11	METAL CHIP	22K	0.5%	1/16W
R4502	1-218-971-11	RES-CHIP	33K	5%	1/16W
R4503	1-218-963-11	RES-CHIP	6.8K	5%	1/16W
R4504	1-218-985-11	METAL CHIP	470K	0.5%	1/16W
R4505	1-218-990-11	SHORT CHIP	0		
R4506	1-218-967-11	RES-CHIP	15K	5%	1/16W
R4507	1-218-965-11	RES-CHIP	10K	5%	1/16W
R4508	1-208-935-11	METAL CHIP	100K	0.5%	1/16W
R4509	1-216-864-11	METAL CHIP	0	5%	1/16W
R4510	1-218-990-11	SHORT CHIP	0		
R4511	1-218-969-11	RES-CHIP	22K	5%	1/16W
R4512	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R4513	1-218-990-11	SHORT CHIP	0		
R4514	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R4515	1-208-713-11	METAL CHIP	18K	0.5%	1/16W
R4517	1-218-990-11	SHORT CHIP	0		
R4518	1-218-971-11	RES-CHIP	33K	5%	1/16W

Ref. No.	Part No.	Description			
R4519	1-218-969-11	RES-CHIP	22K	5%	1/16W
R4520	1-218-965-11	RES-CHIP	10K	5%	1/16W
R4521	1-218-990-11	SHORT CHIP	0		
R4524	1-218-973-11	RES-CHIP	47K	5%	1/16W
R4525	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R4526	1-218-970-11	METAL CHIP	27K	0.5%	1/16W
R4527	1-208-720-11	METAL CHIP	36K	0.5%	1/16W
R4528	1-218-973-11	RES-CHIP	47K	5%	1/16W
R4529	1-218-969-11	RES-CHIP	22K	5%	1/16W
R4531	1-218-973-11	RES-CHIP	47K	5%	1/16W
R4532	1-218-977-11	RES-CHIP	100K	5%	1/16W
R4533	1-218-969-11	RES-CHIP	22K	5%	1/16W
R4534	1-208-935-11	METAL CHIP	100K	0.5%	1/16W
R4535	1-208-721-11	METAL CHIP	39K	0.5%	1/16W
R4536	1-208-701-11	METAL CHIP	5.6K	0.5%	1/16W
R4537	1-218-977-11	RES-CHIP	100K	5%	1/16W
R4538	1-218-969-11	RES-CHIP	22K	5%	1/16W
R4539	1-208-935-11	METAL CHIP	100K	0.5%	1/16W
R4540	1-218-964-11	RES-CHIP	8.2K	5%	1/16W
R4541	1-208-943-11	METAL CHIP	220K	0.5%	1/16W
R4542	1-218-977-11	RES-CHIP	100K	5%	1/16W
R4543	1-218-977-11	RES-CHIP	100K	5%	1/16W
R4544	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R4545	1-208-943-11	METAL CHIP	220K	0.5%	1/16W
R4546	1-208-931-11	METAL CHIP	68K	0.5%	1/16W
R4550	1-208-699-11	METAL CHIP	4.7K	0.5%	1/16W
R4551	1-208-927-11	METAL CHIP	47K	0.5%	1/16W
R4552	1-208-711-11	METAL CHIP	15K	0.5%	1/16W
R4554	1-218-990-11	SHORT CHIP	0		
R4601	1-218-953-11	RES-CHIP	1K	5%	1/16W
R4604	1-218-977-11	RES-CHIP	100K	5%	1/16W
R4605	1-218-989-11	RES-CHIP	1M	5%	1/16W
R4607	1-216-797-11	METAL CHIP	10	5%	1/16W
R4608	1-218-953-11	RES-CHIP	1K	5%	1/16W
R4609	1-218-963-11	RES-CHIP	6.8K	5%	1/16W
R4610	1-218-973-11	RES-CHIP	47K	5%	1/16W
R4611	1-218-973-11	RES-CHIP	47K	5%	1/16W
R4612	1-218-941-81	RES-CHIP	100	5%	1/16W
R4613	1-218-989-11	RES-CHIP	1M	5%	1/16W
R4614	1-218-941-81	RES-CHIP	100	5%	1/16W
R4615	1-218-989-11	RES-CHIP	1M	5%	1/16W
R4617	1-218-953-11	RES-CHIP	1K	5%	1/16W
R4618	1-218-953-11	RES-CHIP	1K	5%	1/16W
		< TRANSFORMER >			
⚠T4501	1-435-252-21	TRANSFORMER, DC-DC CONVERTER			

Ref. No.	Part No.	Description
	A-7078-331-A	VC-281 BOARD, COMPLETE (SERVICE)(TRV24E)
	**********	**********
	A-7078-287-A	VC-281 BOARD, COMPLETE (SERVICE) (TRV25E/TRV27E)
	**********	**********

Electrical parts list of the VC-281 board are not shown.
Pages 6-20 to 6-26 are not shown.

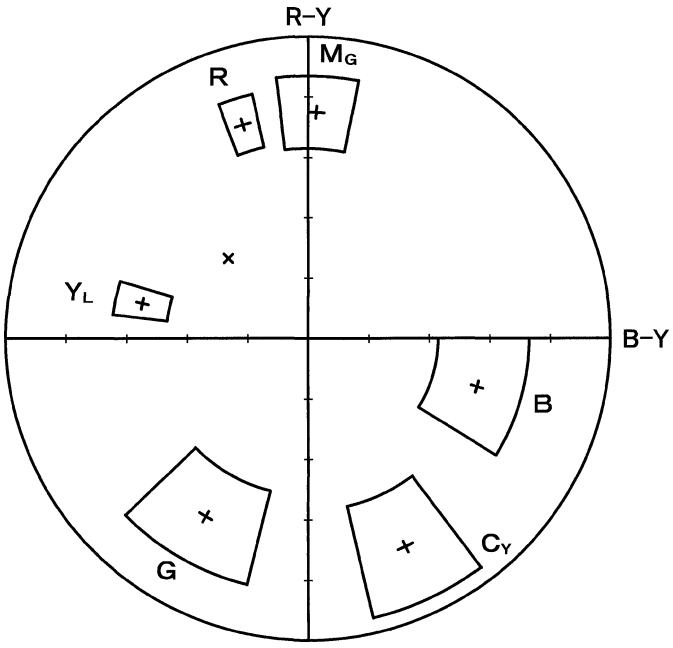
Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description
		ACCESSORIES
		**********
	1-475-141-61	REMOTE COMMANDER (RMT-814)
⚠	1-475-599-14	ADAPTOR, AC AC-L10A (EXCEPT CH)
⚠	1-475-599-82	ADAPTOR, AC AC-L10B (CH)
⚠	1-569-007-11	ADAPTOR, CONVERSION 2P(JE)
⚠	1-569-008-21	ADAPTOR, CONVERSION 2P(E,HK)
	1-573-291-11	CONNECTOR, CONVERSION 21P (AEP,UK,EE,NE)
⚠	1-696-819-11	CORD, POWER (AUS)
⚠	1-757-293-21	CORD, CONNECTION (USB 5P)
⚠	1-769-608-11	CORD, POWER (AEP,EE,NE,E)
⚠	1-782-476-11	CORD, POWER (CH)
⚠	1-783-374-11	CORD, POWER (UK,HK)
⚠	1-790-732-11	CORD, POWER (JE)
	1-824-097-11	CORD, CONNECTION (AV CABLE)(1.5m)
	3-072-414-01	SPVD-008 (CD-ROM USB DRIVER)
	3-075-067-11	MANUAL, INSTRUCTION (ENGLISH/RUSSIAN) (TRV25E:UK/TRV27E:UK)
	3-075-067-21	MANUAL, INSTRUCTION (FRENCH/GERMAN) (TRV24E:AEP/TRV25E:AEP/TRV27E:AEP)
	3-075-067-31	MANUAL, INSTRUCTION (ENGLISH/DUTCH) (TRV24E:AEP/TRV25E:AEP/TRV27E:AEP)
	3-075-067-41	MANUAL, INSTRUCTION (SPANISH/PORTUGUESE) (TRV24E:AEP/TRV25E:AEP/TRV27E:AEP)
	3-075-067-51	MANUAL, INSTRUCTION (ITALIAN/GREEK) (TRV24E:AEP/TRV25E:AEP/TRV27E:AEP)
	3-075-067-61	MANUAL, INSTRUCTION (ENGLISH/SWEDISH) (TRV24E:NE/TRV25E:NE/TRV27E:NE)
	3-075-067-71	MANUAL, INSTRUCTION (DANISH/FINNISH) (TRV24E:NE/TRV25E:NE/TRV27E:NE)
	3-075-068-11	MANUAL, INSTRUCTION (ENGLISH/RUSSIAN) (TRV25E:E, HK, AUS, CH/TRV27E:E, HK, AUS, CH, JE)
	3-075-068-21	MANUAL, INSTRUCTION (FRENCH/GERMAN) (TRV25E:E/TRV27E:E,JE)
	3-075-068-31	MANUAL, INSTRUCTION (ARABIC/PERSIAN) (TRV25E:E/TRV27E:E,JE)
	3-075-068-41	MANUAL, INSTRUCTION (CHINESE) (TRV25E:HK/TRV27E:HK)
	3-075-068-51	MANUAL, INSTRUCTION (CHINESE) (TRV25E:E,CH/TRV27E:E,CH,JE)
	3-742-854-01	LID, BATTERY CASE (FOR RMT-814)
	3-987-015-01	BELT (S), SHOULDER
	A-7024-735-A	MEMORY STICK (MSA-8A)
	X-3950-537-1	CAP ASSY, LENS
		NP-FM50 BATTERY PACK (not supplied)

Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

〈FOR CAMERA COLOR REPRODUCTION ADJUSTMENT〉

Take a copy of CAMERA COLOR REPRODUCTION FRAME with a clear sheet for use.



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Revision History

Ver.	Date	History	Contents	S.M. Rev. issued
1.0	2002.04	Official Release	—	—